

=> file reg  
FILE 'REGISTRY' ENTERED AT 14:26:03 ON 26 DEC 2002  
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=> d his

FILE 'HCAPLUS' ENTERED AT 13:13:58 ON 26 DEC 2002  
L1 23 SEA MALFER ?/AU  
L2 4119 SEA NOBLE ?/AU  
L3 620 SEA COLUCCI ?/AU  
L4 253 SEA SHEETZ ?/AU  
L5 0 SEA L1 AND L2 AND L3 AND L4  
L6 500 SEA SHEETS ?/AU  
L7 1 SEA L1 AND L2 AND L3 AND L6  
SEL  
L7 1 RN

FILE 'REGISTRY' ENTERED AT 13:16:55 ON 26 DEC 2002  
L8 6 SEA (108-95-2/BI OR 111-92-2/BI OR 124-40-3/BI OR

FILE 'LCA' ENTERED AT 13:19:22 ON 26 DEC 2002  
L9 1113 SEA POLYOLEFIN## OR OLEFIN## OR POLYALKENYL? OR ALKENYL?  
OR POLYETHENYL? OR ETHENYL? OR POLYPROPENYL? OR PROPENYL?  
OR POLYBUTENYL? OR BUTENYL? OR BUTENE# OR ISOBUTENE# OR  
POLYBUTENE# OR POLYISOBUTENE# OR ISOBUTYL? OR ISOBUTENYL?  
OR BUTYLEN? OR ISOBUTYLEN?  
L10 64 SEA POLYISOBUTYL? OR POLYISOBUTENYL? OR POLYBUTYLEN? OR  
POLYISOBUTYLEN? OR POLYBUTENYL?  
L11 603 SEA POLYALKENYL? OR ALKENYL? OR POLYETHENYL? OR ETHENYL?  
OR POLYPROPENYL? OR PROPENYL? OR POLYBUTENYL? OR  
BUTENYL? OR BUTENE# OR ISOBUTENE# OR POLYBUTENE# OR  
POLYISOBUTENE# OR ISOBUTYL? OR ISOBUTENYL? OR BUTYLEN?  
OR ISOBUTYLEN?  
L12 64 SEA POLYISOBUTYL? OR POLYISOBUTENYL? OR POLYBUTYLEN? OR  
POLYISOBUTYLEN? OR POLYBUTENYL?

FILE 'REGISTRY' ENTERED AT 13:28:29 ON 26 DEC 2002  
E PHENOL/CN  
L13 1 SEA PHENOL/CN  
E 2-METHYLPHENOL/CN  
L14 1 SEA 2-METHYLPHENOL/CN  
E 3-METHYLPHENOL/CN  
L15 1 SEA 3-METHYLPHENOL/CN  
E 4-METHYLPHENOL/CN  
L16 1 SEA 4-METHYLPHENOL/CN  
E CRESOL/CN  
L17 1 SEA CRESOL/CN  
E CATECHOL/CN  
L18 2 SEA CATECHOL/CN

L19                    E 1,2-BENZENEDIOL, 3-METHYL-/CN  
       1 SEA "1,2-BENZENEDIOL, 3-METHYL-"/CN  
             E 1,2-BENZENEDIOL, 4-METHYL-/CN  
 L20                    1 SEA "1,2-BENZENEDIOL, 4-METHYL-"/CN  
             E 1,3-BENZENEDIOL/CN  
 L21                    1 SEA "1,3-BENZENEDIOL"/CN  
             E 1,3-BENZENEDIOL, 2-METHYL-/CN  
 L22                    1 SEA "1,3-BENZENEDIOL, 2-METHYL-"/CN  
             E 1,3-BENZENEDIOL, 4-METHYL-/CN  
 L23                    1 SEA "1,3-BENZENEDIOL, 4-METHYL-"/CN  
             E 1,3-BENZENEDIOL, 5-METHYL-/CN  
 L24                    1 SEA "1,3-BENZENEDIOL, 5-METHYL-"/CN  
             E 1,4-BENZENEDIOL, 2-METHYL-/CN  
 L25                    1 SEA "1,4-BENZENEDIOL, 2-METHYL-"/CN  
 L26                    13 SEA (L14 OR L15 OR L16 OR L17 OR L18 OR L19 OR L20 OR  
                       L21 OR L22 OR L23 OR L24 OR L25)

FILE 'HCAPLUS' ENTERED AT 13:36:57 ON 26 DEC 2002  
 L27                  9888 SEA (L13/D OR L13/DP OR PHENOL##) (L) (L9 OR L10)  
 L28                  5601 SEA (L13/D OR L13/DP OR PHENOL##) (L) (L11 OR L12)  
 L29                  2161 SEA (L26/D OR L26/DP OR CRESOL# OR CATECHOL# OR ?BENZENED  
                       IOL?) (L) (L9 OR L10)  
 L30                  1306 SEA (L26/D OR L26/DP OR CRESOL# OR CATECHOL# OR ?BENZENED  
                       IOL?) (L) (L11 OR L12)

FILE 'REGISTRY' ENTERED AT 13:43:54 ON 26 DEC 2002  
                       E FORMALDEHYDE/CN  
 L31                  1 SEA FORMALDEHYDE/CN

FILE 'HCAPLUS' ENTERED AT 13:45:07 ON 26 DEC 2002  
 L32                  205360 SEA L31 OR FORMALDEHYDE# OR FORMALIN# OR CH2O OR HCHO OR  
                       H2CO  
 L33                  462257 SEA ?ALDEHYD?

FILE 'LREGISTRY' ENTERED AT 13:45:34 ON 26 DEC 2002  
 L34                  STR

FILE 'REGISTRY' ENTERED AT 13:48:32 ON 26 DEC 2002  
 L35                  SCR 1597  
 L36                  17 SEA SSS SAM L34 AND L35  
 L37                  SCR 963 OR 1398  
 L38                  SCR 1838 OR 1918  
 L39                  50 SEA SSS SAM L34 AND L35 AND L37 NOT L38  
                       D QUE STAT  
 L40                  15 SEA SSS SAM L34 AND L35 AND L37  
 L41                  2975 SEA SSS FUL L34 AND L35 AND L37 NOT L38  
                       SAV L41 TOO036/A

FILE 'HCAPLUS' ENTERED AT 14:01:43 ON 26 DEC 2002  
 L42                  35810 SEA L41  
 L43                  821 SEA L42 AND (L32 OR L33) AND MANNICH?  
 L44                  16 SEA L43 AND L27

L45           15 SEA L43 AND L28  
 L46           1 SEA L43 AND L29  
 L47           1 SEA L43 AND L30  
 L48           QUE ?PHENOL?  
 L49           QUE ?CATECHOL? OR ?CRESOL? OR ?BENZENEDIOL? OR ?HYDROXYAROM? OR ?HYDROXYBENZEN?  
 L50           165 SEA L43 AND L48  
 L51           28 SEA L43 AND L49  
 L52           QUE 51/SC,SX  
 L53           526110 SEA FUEL? OR DIESEL? OR GASOL!N? OR KEROS!N? OR PARAFIN## OR PARAFFIN## OR JETFUEL? OR AVGAS## OR JP5 OR JP10 OR JP(A) (5 OR 10) OR PETROL#  
 L54           284217 SEA (LUBRIC? OR LUBE# OR GREAS? OR ANTIFRIC? OR ANTIWEAR? OR ANTICORRO? OR ANTIRUST? OR ANTIOXID? OR ANTI(W) (FRIC? OR WEAR? OR CORRO? OR RUST? OR OXID?) OR SLICK? OR SLIPP? OR OLEAGINOUS?)/BI,AB  
 L55           22902 SEA ((GEAR? OR ENGINE# OR CRANKCASE? OR MOTOR# OR TRANSMISSION? OR HYDRAUL? OR MACHINE? OR (2 OR 4 OR TWO OR FOUR) (W) (CYCLE# OR STROKE#)) (2A) (FLUID# OR OIL#))/BI,A B  
 L56           22 SEA L50 AND L52  
 L57           16 SEA L50 AND L53  
 L58           29 SEA L50 AND (L54 OR L55)  
 L59           1 SEA L46 OR L47  
 L60           15 SEA (L44 OR L45) NOT L59  
 L61           26 SEA L51 NOT (L59 OR L60)  
 L62           20 SEA (L56 OR L57 OR L58) NOT (L59 OR L60 OR L61)  
 L63           522 SEA ?DISUBST? (3A) ?PHENOL?  
 L64           0 SEA L61 AND L63  
 L65           0 SEA L62 AND L63

FILE 'HCAPLUS' ENTERED AT 14:19:42 ON 26 DEC 2002

L66           204 SEA (DI(2A)SUBST?) (3A) (?PHENOL? OR ?HYDROXYAROM?)  
 L67           0 SEA L61 AND L66  
 L68           0 SEA L62 AND L66  
 L69           4 SEA L43 AND (L63 OR L66)  
 L70           4 SEA L59 OR L69  
 L71           15 SEA L60 NOT L70  
 L72           26 SEA L61 NOT L70  
 L73           20 SEA L62 NOT L70

FILE 'REGISTRY' ENTERED AT 14:26:03 ON 26 DEC 2002

=> d l41 que stat  
 L34           STR  
 Ak~NH~Ak  
 1   2   3

#### NODE ATTRIBUTES:

CONNECT IS E1 RC AT 1  
 CONNECT IS E1 RC AT 3

DEFAULT MLEVEL IS ATOM  
 GGCAT IS SAT AT 1  
 GGCAT IS SAT AT 3  
 DEFAULT ECLEVEL IS LIMITED  
 ECOUNT IS M1-X30 C AT 1  
 ECOUNT IS M1-X30 C AT 3

## GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 3

## STEREO ATTRIBUTES: NONE

L35 SCR 1597  
 L37 SCR 963 OR 1398  
 L38 SCR 1838 OR 1918  
 L41 2975 SEA FILE=REGISTRY SSS FUL L34 AND L35 AND L37 NOT L38

100.0% PROCESSED 35578 ITERATIONS  
 SEARCH TIME: 00.00.01

2975 ANSWERS

=> file hcaplus  
 FILE 'HCAPLUS' ENTERED AT 14:27:12 ON 26 DEC 2002  
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=> d 170 1-4 cbib abs hitstr hitind

L70 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2002 ACS  
 2002:591747 Document No. 137:142848 **Mannich** bases prepared from secondary amines and disubstituted hydroxyaromatic compounds as gasoline intake valve deposit inhibitors. Malfer, Dennis J.; Noble, Andrea T.; Colucci, William J.; Sheets, Roger M. (Ethyl Corporation, USA). Eur. Pat. Appl. EP 1229100 A2 20020807, 11 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR. (English). CODEN: EPXXDW. APPLICATION: EP 2002-250697 20020201. PRIORITY: US 2001-776036 20010202.

AB **Mannich** base gasoline additive are prep'd. by reaction of:

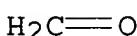
(1) a **di-substituted hydroxyarom.** compd., with a long-chain polyolefin-derived aliph. hydrocarbon group with mol. wt. 500-3000, and a C1-4-alkyl group, (2) a secondary amine of formula HNR1R2 (R1 and R2 = C1-30-alkyl), and (3) an **aldehyde**. The hydroxyarom. compd. is preferably a phenol that has only 1 unsubstituted ortho- or para-position for reaction with the **ald hyde** and the secondary amine. The condensation reaction is carried out at a 1:1.0-1.15:1.0-1.5 mol ratio of hydroxyarom. compd.-amine-aldehyde. An addnl. component to enhance the effectiveness of the **Mannich** base

is a carrier liq., esp. a hydrocarbon oil, a poly(.alpha.-olefin) oligomer, and a polyoxyalkylene [esp. a poly(1,2-alkylene oxide) mono(C<sub>n</sub> to C<sub>8</sub>-alkyl ether)]. The Mannich bases, suitable as gasoline valve deposit inhibitors, are present in the gasoline at a 5-200 lbs/bbl treating level.

IT 50-00-0DP, Formaldehyde, reaction products with polybutenyl-o-cresol and di-Me amine (or di-Bu amine) 95-48-7DP, o-Cresol, polybutenyl derivs., reaction products with di-Me amine (or di-Bu amine) and formaldehyde 111-92-2DP, Dibutyl amine, reaction products with formaldehyde and polybutenyl-o-cresol 124-40-3DP, Dimethyl amine, reaction products with formaldehyde and polybutenyl-o-cresol  
 (Mannich bases prep'd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)

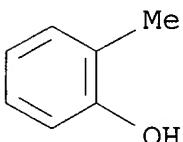
RN 50-00-0 HCPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 95-48-7 HCPLUS

CN Phenol, 2-methyl- (9CI) (CA INDEX NAME)



RN 111-92-2 HCPLUS

CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



RN 124-40-3 HCPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC ICM C10L001-22

ICS C10L001-14; C10L010-00

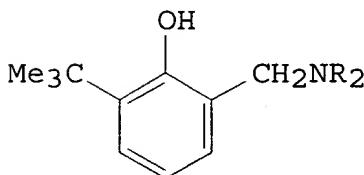
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

- ST gasoline valve deposit inhibitor **Mannich** base; secondary amine **Mannich** base gasoline deposit inhibitor; polyoxyalkylene **Mannich** base gasoline deposit inhibitor
- IT **Mannich** bases  
(**Mannich** bases prep'd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT **Aldehydes**, uses  
(**Mannich** reaction products with **disubstituted phenols** and secondary aliph. amines; **Mannich** bases prep'd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT Amines, uses  
(aliph., secondary, **Mannich** reaction products with **disubstituted phenols** and **aldehydes**; **Mannich** bases prep'd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT Polyoxyalkylenes, uses  
(alkyl group-terminated, carrier liqs.; **Mannich** bases prep'd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT Polyoxyalkylenes, uses  
(carrier liqs.; **Mannich** bases prep'd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT Gasoline additives  
(deposit inhibitors; **Mannich** bases prep'd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT Gasoline additives  
(detergents; **Mannich** bases prep'd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT **Phenols**, uses  
(**disubstituted**, reaction products with secondary aliph. amines and **aldehydes**; **Mannich** bases prep'd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT Detergents  
(gasoline additive; **Mannich** bases prep'd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT Polyoxyalkylenes, uses  
(mono(C.gtoreq.8-alkyl-terminated, carrier liqs.; **Mannich** bases prep'd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT Polyolefins  
(oligomers, carrier liqs.; **Mannich** bases prep'd. from secondary amines and disubstituted hydroxyarom. compds. as gasoline intake valve deposit inhibitors)
- IT 108-95-2D, Phenol, polyalkenyl derivs., reaction products with

- aldehydes and secondary aliph. amines  
 (Mannich bases prep'd. from secondary amines and  
 disubstituted hydroxyarom. compds. as gasoline intake valve  
 deposit inhibitors)
- IT 50-00-0DP, **Formaldehyde**, reaction products with  
**polybutenyl-o-cresol** and di-Me amine (or di-Bu  
 amine) 95-48-7DP, **o-Cresol**, **polybutenyl**  
 derivs., reaction products with di-Me amine (or di-Bu amine) and  
**formaldehyde** 111-92-2DP, **Dibutyl amine**, reaction  
 products with **formaldehyde** and **polybutenyl-o-**  
**cresol** 124-40-3DP, **Dimethyl amine**, reaction  
 products with **formaldehyde** and **polybutenyl-o-**  
**cresol**  
 (Mannich bases prep'd. from secondary amines and  
 disubstituted hydroxyarom. compds. as gasoline intake valve  
 deposit inhibitors)
- IT 25322-69-4D, mono(C.gtoreq.8-alkyl-terminated  
 (carrier liqs.; Mannich bases prep'd. from secondary  
 amines and disubstituted hydroxyarom. compds. as gasoline intake  
 valve deposit inhibitors)

L70 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2002 ACS  
 1990:551939 Document No. 113:151939 Selective functionalization of  
 aromatic compounds. I. o-Aminoalkylation of phenol and  
 o-tert-butylphenol. Salakhutdinov, N. F.; Krysin, A. P.; Koptyug,  
 V. A. (Novosib. Inst. Org. Khim., Novosibirsk, USSR). Zhurnal  
 Organicheskoi Khimii, 26(4), 775-7 (Russian) 1990. CODEN: ZORKAE.  
 ISSN: 0514-7492. OTHER SOURCES: CASREACT 113:151939.

GI



- AB **Mannich** reaction of o-Me<sub>3</sub>CC<sub>6</sub>H<sub>4</sub>OH with HCHO and R<sub>2</sub>NH (R = Me, Et) gave 90-95% phenols I, exclusively substituted in the o-position, and small amts. of the 2,4-disubstituted phenols. **Mannich** reaction of a phenol-.beta.-cyclodextrin complex with Me<sub>2</sub>NH and HCHO gave 75% o-substituted product.
- IT 109-89-7, reactions  
 (Mannich reaction of **formaldehyde** and, with  
 butylphenol)
- RN 109-89-7 HCAPLUS

CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



IT 124-40-3, reactions  
(**Mannich** reaction of **formaldehyde** and, with  
phenol and butylphenol)

RN 124-40-3 HCPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

ST **Mannich** reaction phenol dialkylamine; cyclodextrin phenol  
complex **Mannich** reaction

IT **Mannich** reaction  
(of phenol and butylphenol by **formaldehyde** and  
dialkylamines)

IT 109-89-7, reactions  
(**Mannich** reaction of **formaldehyde** and, with  
butylphenol)

IT 124-40-3, reactions  
(**Mannich** reaction of **formaldehyde** and, with  
phenol and butylphenol)

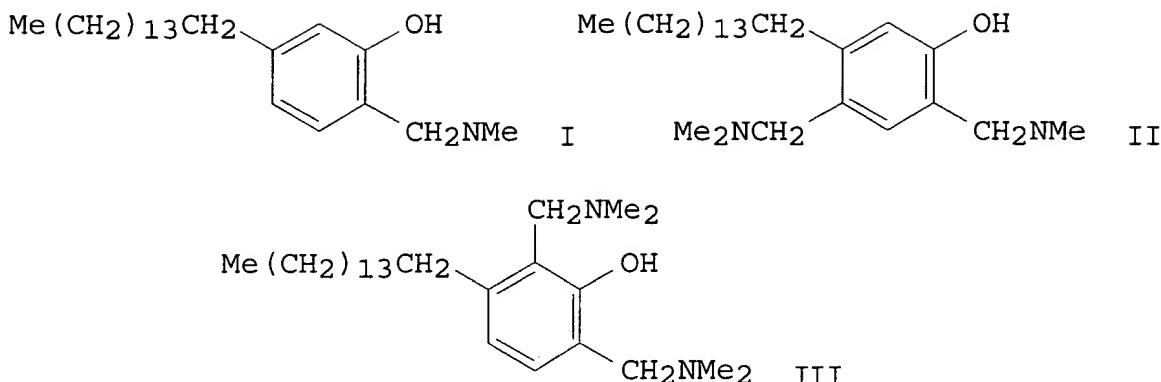
IT 88-18-6  
(**Mannich** reaction of, with dimethyl- and diethylamines  
and **formaldehyde**)

IT 73621-01-9D, phenol complex  
(**Mannich** reaction of, with **formaldehyde** and  
dimethylamine)

L70 ANSWER 3 OF 4 HCPLUS COPYRIGHT 2002 ACS

1987:515049 Document No. 107:115049 Enhancement of the rate of  
**Mannich** reactions in aqueous media. Tychopoulos, V.; Tyman,  
J. H. P. (Dep. Chem., Brunel Univ., Uxbridge/Middlesex, UB8 3PH,  
UK). Synthetic Communications, 16(11), 1401-9 (English) 1986.  
CODEN: SYNCAN. ISSN: 0039-7911. OTHER SOURCES: CASREACT  
107:115049.

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AB      The rate of **Mannich** reactions of PhOH, 3-Me(CH<sub>2</sub>)<sub>14</sub>C<sub>6</sub>H<sub>4</sub>OH and MeCOPh with CH<sub>2</sub>O and Pr<sub>2</sub>NH was greatly increased in aq. solvents relative to alc. and hydrocarbon solvents. Phenols reacted with CH<sub>2</sub>O and amines, e.g., Me<sub>2</sub>NH, to give monosubstituted dialkylaminomethylphenols (e.g., I) or isomeric disubstituted dialkylaminomethylphenols (e.g.; II, III) depending upon the reaction time.

IT      124-40-3, reactions  
           (**Mannich** reaction of, with phenol)

RN      124-40-3    HCPLUS

CN      Methanamine, N-methyl- (9CI)    (CA INDEX NAME)



IT      142-84-7, Dipropylamine  
           (**Mannich** reaction of, with phenols and acetophenol,  
           solvent effect on rate of)

RN      142-84-7    HCPLUS

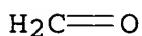
CN      1-Propanamine, N-propyl- (9CI)    (CA INDEX NAME)



IT      50-00-0, reactions  
           (**Mannich** reaction of, with secondary amines, phenols or  
           acetophenone, solvent effect on rate of)

RN      50-00-0    HCPLUS

CN      Formaldehyde (8CI, 9CI)    (CA INDEX NAME)



CC 22-4 (Physical Organic Chemistry)  
 Section cross-reference(s): 25  
 ST Mannich rate enhancement aq media; alkylaminomethylphenol;  
 phenol dialkylaminomethyl; kinetics Mannich aq media  
 IT Kinetics of Mannich reaction  
 (of phenols and acetophenone with secondary amines)  
 IT Mannich reaction  
 (of secondary amines with phenols and acetophenone)  
 IT Solvent effect  
 (on rate of Mannich reaction of pentadecylphenol and  
 acetophenone with dipropylamine)  
 IT Amines, reactions  
 (secondary, Mannich reaction of, with phenols and  
 acetophenone)  
 IT 108-39-4, reactions 108-95-2, Phenol, reactions  
 (Mannich reaction of, with dimethylamine)  
 IT 98-86-2, Acetophenone, reactions  
 (Mannich reaction of, with dipropylamine, solvent  
 effect on rate of)  
 IT 124-40-3, reactions  
 (Mannich reaction of, with phenol)  
 IT 142-84-7, Dipropylamine  
 (Mannich reaction of, with phenols and acetophenol,  
 solvent effect on rate of)  
 IT 50-00-0, reactions  
 (Mannich reaction of, with secondary amines, phenols or  
 acetophenone, solvent effect on rate of)  
 IT 501-24-6, 3-Pentadecylphenol  
 (Mannich reaction of, with secondary amines, solvent  
 effect on rate of)

L70 ANSWER 4 OF 4 HCPLUS COPYRIGHT 2002 ACS  
 1973:526004 Document No. 79:126004 Mannich bases. VI.  
**Mannich bases of 2,6-disubstituted phenols**  
 . Moehrle, H.; Miller, Chr. (Pharm. Inst., Freie Univ. Berlin,  
 Berlin, Fed. Rep. Ger.). Archiv der Pharmazie (Weinheim, Germany),  
 306(7), 552-7 (German) 1973. CODEN: ARPMAZ. ISSN: 0365-6233.  
 AB Mannich reaction of 2,6-MeRC<sub>6</sub>H<sub>3</sub>OH (R = Me, Et) with  
 HCHO and R<sub>1</sub>R<sub>2</sub>NH [R<sub>1</sub> = R<sub>2</sub> = Me, Et; R<sub>1</sub>R<sub>2</sub> = (CH<sub>2</sub>)<sub>5</sub>] yielded  
 50.5-70% 3,5,4-MeR(HO)C<sub>6</sub>H<sub>2</sub>CH<sub>2</sub>NR<sub>1</sub>R<sub>2</sub> (I) and not 2,6-MeRC<sub>6</sub>H<sub>3</sub>OCH<sub>2</sub>NR<sub>1</sub>R<sub>2</sub>  
 as assumed by I. Decombe (1933). The structure of I was proved by  
 NMR spectra and by dehydrogenation of I with EDTA Hg(II) salt which  
 gave 3,5,4-MeR(HO)C<sub>6</sub>H<sub>2</sub>CHO.  
 IT 50-00-0, reactions  
 (Mannich reaction of, with dialkylphenols and amines)  
 RN 50-00-0 HCPLUS  
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)

IT 109-89-7, reactions 124-40-3, reactions  
     (Mannich reaction of, with dialkylphenols and  
     formaldehyde)  
 RN 109-89-7 HCPLUS  
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



RN 124-40-3 HCPLUS  
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



CC 25-10 (Noncondensed Aromatic Compounds)  
 ST Mannich base dialkylphenol; alkylphenol Mannich  
     base; phenol dialkyl Mannich base  
 IT Mannich bases  
     (of dialkylphenols)  
 IT 576-26-1 1687-64-5  
     (Mannich reaction of, with amines and  
     formaldehyde)  
 IT 50-00-0, reactions  
     (Mannich reaction of, with dialkylphenols and amines)  
 IT 109-89-7, reactions 110-89-4, reactions 124-40-3  
     , reactions  
     (Mannich reaction of, with dialkylphenols and  
     formaldehyde)

=> d 160 1-15 cbib abs hitstr hitind

L60 ANSWER 1 OF 15 HCPLUS COPYRIGHT 2002 ACS  
 2002:811857 Document No. 137:312708 Extractive procedure for the  
     purification of long-chain alkylphenols and their Mannich  
     adducts. Lange, Arno; Rath, Hans Peter; Walter, Marc (BASF AG,  
     Germany). Ger. Offen. DE 10119738 A1 20021024, 4 pp. (German).  
     CODEN: GWXXBX. APPLICATION: DE 2001-10119738 20010423.  
 AB A procedure for the purifn. of long-chain alkylphenols [e.g., 4-(  
     polyisobutetyl)phenol] having an av. mol. wt. of  
     200-4000, and Mannich adducts derived from them with  
     formaldehyde and secondary amines, is described in which one  
     exts. the substituted phenol with an extractant haing a  
     polarity ET(30) of 38-57 kcal/mol, a phenol deriv.-contg.  
     phase and an extractant phase sep. from each other, and the  
     extractant is removed.  
 IT 50-00-0DP, Formaldehyde, Mannich adducts  
     with 4-(polyisobutetyl)phenol and dimethylamine  
     108-95-2DP, Phenol, 4-(polyisobutetyl)

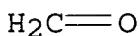
and 2-dimethylamino-4-(**polyisobutetyl**) derivs.

**124-40-3DP**, Dimethylamine, 4-(**polyisobutetyl**) phenols and 2-dimethylamino-4-(**polyisobutetyl**) phenols

(extractive procedure for the purifn. of long-chain alkylphenols and their **Mannich** adducts)

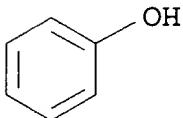
RN 50-00-0 HCPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 108-95-2 HCPLUS

CN Phenol (8CI, 9CI) (CA INDEX NAME)



RN 124-40-3 HCPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC ICM C07C213-10

ICS C07C037-72

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

Section cross-reference(s): 35, 48

ST polyisobutetylphenol purifn extrn; **Mannich** adduct  
polyisobutetylphenol purifn extrn

IT Phenols, preparation

(alkyl, long-chain alkylphenols having an av. mol. wt. of 200-4000; extractive procedure for the purifn. of long-chain alkylphenols and their **Mannich** adducts)

IT Extraction

(extractive procedure for the purifn. of long-chain alkylphenols and their **Mannich** adducts)

IT Extractants

(having a polarity ET(30) of 38-57 kcal/mol in an extractive procedure for the purifn. of long-chain alkylphenols and their **Mannich** adducts)

IT **Mannich** bases

(phenolic; extractive procedure for the purifn. of long-chain alkylphenols and their **Mannich** adducts)

IT Amines, preparation

(secondary, **Mannich** adducts with long-chain

alkylphenols and **formaldehyde**; extractive procedure for the purifn. of long-chain alkylphenols and their **Mannich adducts**)

- IT 64-17-5, Ethanol, uses 67-56-1, Methanol, uses 67-63-0, 2-Propanol, uses 67-64-1, Acetone, uses 71-23-8, 1-Propanol, uses 78-93-3, Butanone, uses (extractant; having a polarity ET(30) of 38-57 kcal/mol in an extractive procedure for the purifn. of long-chain alkylphenols and their **Mannich adducts**)
- IT 50-00-0DP, **Formaldehyde, Mannich adducts** with 4-(**polyisobutylene phenol**) and dimethylamine 108-95-2DP, **Phenol, 4-(polyisobutylene)** and 2-dimethylamino-4-(**polyisobutylene**) derivs. 124-40-3DP, **Dimethylamine, 4-(polyisobutylene phenols** and 2-dimethylamino-4-(**polyisobutylene phenols** 9003-27-4DP, **Polyisobutene, 4-(polyisobutylene phenols** and 2-dimethylamino-4-(**polyisobutylene phenols**) (extractive procedure for the purifn. of long-chain alkylphenols and their **Mannich adducts**)

L60 ANSWER 2 OF 15 HCPLUS COPYRIGHT 2002 ACS

2001:265474 Document No. 134:283142 Method for producing **Mannich adducts that contain polyisobutylene**

**phenol.** Lange, Arno; Rath, Hans Peter; Posselt, Dietmar; Troetsch-Schaller, Irene; Walter, Marc (BASF A.-G., Germany). PCT Int. Appl. WO 2001025294 A1 20010412, 52 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (German). CODEN: PIXXD2. APPLICATION: WO 2000-EP9746 20001005. PRIORITY: DE 1999-19948111 19991006.

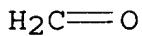
- AB The invention relates to a method for producing **Mannich adducts that contain polyisobutylene phenol** by:  
 (a) alkylating a **phenol** with highly-reactive **polyisobutylene** at a temp. lower than approx. 50 >C and in the presence of an alkylation catalyst; (b) reacting the reaction product from (a) with **formaldehyde**, an oligomer or with a polymer of the **formaldehyde** and with at least one amine, which has at least one secondary amino function and does not have any primary amino function; or (c) reacting the reaction product from (a) with at least one adduct consisting of at least one amine, which has at least one secondary or primary amino function, and with **formaldehyde**, an oligomer of the **formaldehyde**, a polymer of the **formaldehyde** or with a **formaldehyde** equiv. The invention also relates to **Mannich adducts** that can be obtained by using this method, to the use of the **Mannich adducts** as detergent additives in fuel compns. and

lubricant compns., and to additive concs., fuel compns. and lubricant compns. contg. these Mannich adducts.

IT 50-00-0, Formaldehyde, reactions 109-89-7  
 , Diethylamine, reactions 124-40-3, Dimethylamine,  
 reactions 142-84-7, Dipropylamine  
 (method for producing Mannich adducts that contain  
 polyisobutylene phenol)

RN 50-00-0 HCPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 109-89-7 HCPLUS  
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



RN 124-40-3 HCPLUS  
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



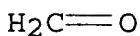
RN 142-84-7 HCPLUS  
 CN 1-Propanamine, N-propyl- (9CI) (CA INDEX NAME)



IC ICM C08F008-32  
 ICS C10L001-22; C10M159-16  
 CC 51-8 (Fossil Fuels, Derivatives, and Related Products)  
 ST Mannich adduct gasoline detergent additive; lubricant  
 detergent additive Mannich adduct  
 IT Mannich reaction  
 (adducts; method for producing Mannich adducts that  
 contain polyisobutylene phenol)  
 IT Diesel fuel additives  
 Gasoline additives  
 Lubricating oil additives  
 (detergent; method for producing Mannich adducts that  
 contain polyisobutylene phenol)  
 IT 50-00-0, Formaldehyde, reactions 108-95-2,  
 Phenol, reactions 109-55-7, 3-(Dimethylamino)propylamine  
 109-89-7, Diethylamine, reactions 110-91-8, Morpholine,  
 reactions 124-40-3, Dimethylamine, reactions

**142-84-7, Dipropylamine 1336-21-6, Ammonium hydroxide  
6711-48-4 9003-27-4, Polyisobutylene 26265-75-8,  
Dimethylvinylidene  
(method for producing Mannich adducts that contain  
polyisobutylene phenol)**

- L60 ANSWER 3 OF 15 HCAPLUS COPYRIGHT 2002 ACS  
 2001:265473 Document No. 134:283141 Method for producing  
**Mannich adducts that contain polyisobutylene phenol.** Lange, Arno; Rath, Hans Peter; Posselt, Dietmar;  
 Troetsch-Schaller, Irene; Walter, Marc (BASF A.-G., Germany). PCT  
 Int. Appl. WO 2001025293 A1 20010412, 42 pp. DESIGNATED STATES: W:  
 AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR,  
 CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID,  
 IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,  
 MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,  
 SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ,  
 BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM,  
 CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL,  
 PT, SE, SN, TD, TG. (German). CODEN: PIXXD2. APPLICATION: WO  
 2000-EP9745 20001005. PRIORITY: DE 1999-19948114 19991006.  
 AB The invention relates to a method for producing **Mannich**  
 adducts that contain **polyisobutylene phenol** by:  
 (a) alkylating a **phenol** with highly-reactive  
**polyisobutylene** having a numerical av. mol. wt. of <1 000  
 and with a polydispersivity of <3.0, at a temp. lower than  
 50.degree. and in the presence of an alkylation catalyst; (b)  
 reacting the reaction product from (a) with; (b1) an  
**aldehyde**, selected among **formaldehydes**, with an  
 oligomer and with a polymer of the **formaldehyde**, and with;  
 (b2) at least one amine which has at least one primary or one  
 secondary amino function. The invention also relates to  
**Mannich** adducts that can be obtained by using this method,  
 to the use of the **Mannich** adducts as detergent additives  
 in fuel compns. and lubricant compns., and to additive concs., fuel  
 compns. and lubricant compns. contg. these **Mannich**  
 adducts.  
 IT 50-00-0, **Formaldehyde**, reactions 124-40-3  
 , Dimethylamine, reactions  
 (method for producing **Mannich** adducts that contain  
**polyisobutylene phenol**)  
 RN 50-00-0 HCAPLUS  
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



- RN 124-40-3 HCAPLUS  
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)

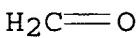
H<sub>3</sub>C—NH—CH<sub>3</sub>

- IC ICM C08F008-32  
 ICS C10L001-22; C10M159-16  
 CC 51-8 (Fossil Fuels, Derivatives, and Related Products)  
 ST Mannich adduct gasoline detergent additive; lubricant  
 detergent additive Mannich adduct  
 IT Mannich reaction  
 (adducts; method for producing Mannich adducts that  
 contain polyisobutylene phenol)  
 IT Diesel fuel additives  
 Gasoline additives  
 Lubricating oil additives  
 (detergent; method for producing Mannich adducts that  
 contain polyisobutylene phenol)  
 IT 50-00-0, Formaldehyde, reactions 108-95-2,  
 Phenol, reactions 109-55-7, 3-(Dimethylamino)propylamine  
 110-91-8, Morpholine, reactions 124-40-3, Dimethylamine,  
 reactions 1336-21-6, Ammonium hydroxide 6711-48-4 7637-07-2,  
 Boron fluoride (BF<sub>3</sub>), reactions 9003-27-4, Polyisobutylene  
 (method for producing Mannich adducts that contain  
 polyisobutylene phenol)
- L60 ANSWER 4 OF 15 HCPLUS COPYRIGHT 2002 ACS  
 2000:911377 Document No. 134:73887 Polyalkenylphenol-derived aromatic  
 Mannich compounds as diesel fuel and gasoline detergents.  
 McAtee, Rodney John (The Lubrizol Corporation, USA). PCT Int. Appl.  
 WO 2000078898 A1 20001228, 24 pp. DESIGNATED STATES: W: CA, SG;  
 RW: BE, DE, ES, FR, GB, IT, NL, SE. (English). CODEN: PIXXD2.  
 APPLICATION: WO 2000-US16600 20000616. PRIORITY: US 1999-337997  
 19990622.
- AB Arom. Mannich compds., as gasoline and diesel fuel  
 detergent additives, are synthesized by reaction of a hydroxy-contg.  
 arom. compd., of formula (R<sub>1</sub>)<sub>n</sub>(R<sub>2</sub>)Ar-(OH)<sub>m</sub> (Ar is an arom. group; m  
 = 1, 2, or 3; n = 1-4; R<sub>1</sub> is C<400-hydrocarbyl; and R<sub>2</sub> = H, amino,  
 or carboxyl), with an aldehyde or ketone, of general  
 formula R<sub>1</sub>-C(:O)-R<sub>2</sub> (R<sub>1</sub> and R<sub>2</sub> = H or C<sub>1-18</sub>-hydrocarbyl, optionally  
 substituted with a carbonyl-contg. C<sub>1-18</sub>-hydrcarbyl), and a primary  
 or secondary amine in the presence of an alc. R<sub>1</sub> is preferably  
 derived from a polyolefin, esp. polyisobutylene with no. av. mol.  
 wt. of 300-5000. The amine reactant can be: (1) an amine, of  
 general formula R<sub>1</sub>-NH-R<sub>3</sub>, in which R<sub>1</sub> and R<sub>3</sub> are H or hydrocarbyl,  
 optionally substituted by amino, hydroxy, or alkoxy groups, or (2) a  
 polyamine, of general formula R<sub>1</sub>-NH-(R<sub>2</sub>N-R<sub>3</sub>)<sub>n</sub>-R<sub>4</sub>, in which R<sub>1</sub>, R<sub>3</sub>,  
 and R<sub>4</sub> are H or hydrocarbyl, optionally substituted by hydroxy,  
 amino, or hydroxyamino groups; R<sub>2</sub> is an alkylene group; and n = 0-5.
- IT 50-00-0DP, Formaldehyde, Mannich  
 reaction products with amines and polyalkenylphenols, uses  
 108-95-2DP, Phenol, polyisobutetyl  
 derivs., Mannich reaction products with  
 paraformaldehyde and ethylenediamine, uses

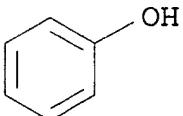
111-92-2DP, Dibutylamine, Mannich reaction  
 products with polyalkenylphenols and ketones or aldehydes  
 124-40-3DP, Dimethylamine, Mannich reaction  
 products with polyalkenylphenols and ketones or aldehydes  
 624-78-2DP, N-Methylethylamine, Mannich reaction  
 products with polyalkenylphenols and ketones or aldehydes  
 2439-54-5DP, N-Methyloctylamine, Mannich reaction  
 products with polyalkenylphenols and ketones or aldehydes  
 315662-91-0DP, Mannich reaction products with  
 polyalkenylphenols and ketones or aldehydes  
 (detergents; polyalkenylphenol-derived arom.

Mannich compds. as diesel fuel and gasoline detergents)

RN 50-00-0 HCPLUS  
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 108-95-2 HCPLUS  
 CN Phenol (8CI, 9CI) (CA INDEX NAME)



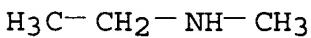
RN 111-92-2 HCPLUS  
 CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



RN 124-40-3 HCPLUS  
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



RN 624-78-2 HCPLUS  
 CN Ethanamine, N-methyl- (9CI) (CA INDEX NAME)



RN 2439-54-5 HCPLUS  
 CN 1-Octanamine, N-methyl- (9CI) (CA INDEX NAME)

Me—(CH<sub>2</sub>)<sub>7</sub>—NHMe

RN 315662-91-0 HCPLUS  
 CN Propanol, 1-(propylamino)- (9CI) (CA INDEX NAME)

n-Pr—NH—Pr-n

D1—OH

IC ICM C10L001-22  
 ICS C10L001-14; C07C213-08; C08F008-32; C07C209-60  
 CC 51-7 (Fossil Fuels, Derivatives, and Related Products)  
 ST arom **Mannich** base fuel detergent; diesel fuel detergent  
 arom **Mannich** base; gasoline detergent arom **Mannich**  
 base  
 IT Diesel fuel additives  
 Gasoline additives  
 (detergents; polyalkenylphenol-derived arom. **Mannich**  
 compds. as diesel fuel and gasoline detergents)  
 IT **Mannich** bases  
 (detergents; polyalkenylphenol-derived arom. **Mannich**  
 compds. as diesel fuel and gasoline detergents)  
 IT Detergents  
 (gasoline additive; polyalkenylphenol-derived arom.  
**Mannich** compds. as diesel fuel and gasoline detergents)  
 IT **Mannich** bases  
 (phenolic, detergents; polyalkenylphenol  
 -derived arom. **Mannich** compds. as diesel fuel and  
 gasoline detergents)  
 IT 50-00-0DP, **Formaldehyde**, **Mannich**  
 reaction products with amines and polyalkenylphenols, uses  
 50-00-0DP, **Formaldehyde**, **Mannich**  
 reaction products with ethylenediamine and polyisobutylene phenol,  
 uses 56-18-8DP, 1,3-Propanediamine, N-(3-aminopropyl)-,  
**Mannich** reaction products with polyalkenylphenols and  
 ketones or **aldehydes** 62-53-3DP, Aniline, **Mannich**  
 reaction products with polyalkenylphenols and ketones or **aldehydes** 67-64-1DP, Acetone, **Mannich** reaction  
 products with amines and polyalkenylphenols 74-89-5DP,  
 Methylamine, **Mannich** reaction products with  
 polyalkenylphenols and ketones or **aldehydes** 75-07-0DP,  
**Acetaldehyde**, **Mannich** reaction products with  
 amines and polyalkenylphenols, uses 78-90-0DP, Propylenediamine,  
**Mannich** reaction products with polyalkenylphenols and  
 ketones or **aldehydes** 78-93-3DP, Methyl ethyl ketone,

Mannich reaction products with amines and polyalkenylphenols  
95-54-5DP, o-Phenylenediamine, Mannich reaction products  
with polyalkenylphenols and ketones or aldehydes  
96-20-8DP, 2-Amino-1-butanol, Mannich reaction products  
with polyalkenylphenols and ketones or aldehydes  
100-52-7DP, Benzaldehyde, Mannich reaction  
products with amines and polyalkenylphenols, uses 101-77-9DP,  
Bis-(p-aminophenyl)methane, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes 103-76-4DP,  
1-Piperazineethanol, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes 107-15-3DP,  
Ethylenediamine, Mannich reaction products with  
ethylenediamine and polyisobutarylphenol 107-22-2DP, Glyoxal,  
Mannich reaction products with amines and polyalkenylphenols  
108-78-1DP, Melamine, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes 108-91-8DP,  
Cyclohexylamine, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes  
108-95-2DP, Phenol, polyisobutetyl  
derivs., Mannich reaction products with  
paraformaldehyde and ethylenediamine, uses 109-76-2DP,  
Trimethylenediamine, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes 110-62-3DP,  
Valeraldehyde, Mannich reaction products with  
amines and polyalkenylphenols 110-85-0DP, Piperazine,  
Mannich reaction products with polyalkenylphenols and  
ketones or aldehydes, uses 110-88-3DP, Trioxane,  
Mannich reaction products with ethylenediamine and  
polyisobutarylphenol 110-90-7DP, Hexahydro-1,3,5-triazine,  
Mannich reaction products with polyalkenylphenols and  
ketones or aldehydes 110-91-8DP, Morpholine,  
Mannich reaction products with polyalkenylphenols and  
ketones or aldehydes, uses 110-97-4DP, 2-Propanol,  
1,1'-iminobis-, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes 111-42-2DP,  
Diethanolamine, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes  
111-92-2DP, Dibutylamine, Mannich reaction  
products with polyalkenylphenols and ketones or aldehydes  
112-24-3DP, Triethylenetetramine, Mannich reaction  
products with polyalkenylphenols and ketones or aldehydes  
112-57-2DP, Tetraethylenepentamine, Mannich reaction  
products with polyalkenylphenols and ketones or aldehydes  
115-69-5DP, 2-Amino-2-methyl-1,3-propanediol, Mannich  
reaction products with polyalkenylphenols and ketones or  
aldehydes 115-70-8DP, 2-Amino-2-ethyl-1,3-propanediol,  
Mannich reaction products with polyalkenylphenols and  
ketones or aldehydes 120-72-9DP, Indole, Mannich  
reaction products with polyalkenylphenols and ketones or  
aldehydes 123-38-6DP, Propionaldehyde,  
Mannich reaction products with amines and polyalkenylphenols  
123-72-8DP, Butyraldehyde, Mannich reaction

products with amines and polyalkenylphenols 123-75-1DP,  
Pyrrolidine, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes, uses  
124-22-1DP, Dodecylamine, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes 124-30-1DP,  
Octadecylamine, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes  
124-40-3DP, Dimethylamine, Mannich reaction  
products with polyalkenylphenols and ketones or aldehydes  
124-68-5DP, 2-Amino-2-methyl-1-propanol, Mannich reaction  
products with polyalkenylphenols and ketones or aldehydes  
141-43-5DP, Ethanolamine, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes 156-87-6DP,  
3-Amino-1-propanol, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes 288-88-0DP,  
1H-1,2,4-Triazole, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes 289-95-2DP,  
Pyrimidine, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes 298-12-4DP,  
Glyoxylic acid, Mannich reaction products with amines and  
polyalkenylphenols 373-44-4DP, Octamethylenediamine,  
Mannich reaction products with polyalkenylphenols and  
ketones or aldehydes 504-76-7DP, Oxazolidine,  
Mannich reaction products with polyalkenylphenols and  
ketones or aldehydes 589-38-8DP, Ethyl propyl ketone,  
Mannich reaction products with amines and polyalkenylphenols  
591-78-6DP, Butyl methyl ketone, Mannich reaction products  
with amines and polyalkenylphenols 624-78-2DP,  
N-Methylethylamine, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes 646-25-3DP,  
Decamethylenediamine, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes 939-06-0DP,  
1H-Imidazole, 4,5-dihydro-4-methyl-2-phenyl-, Mannich  
reaction products with polyalkenylphenols and ketones or  
aldehydes 1615-03-8DP, 1H-Imidazole, 4,5-dihydro-4-methyl-  
, Mannich reaction products with polyalkenylphenols and  
ketones or aldehydes 2439-54-5DP,  
N-Methyloctylamine, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes 2842-38-8DP,  
N-(2-Hydroxyethyl)-cyclohexylamine, Mannich reaction  
products with polyalkenylphenols and ketones or aldehydes  
4067-16-7DP, Pentaethylenehexamine, Mannich reaction  
products with polyalkenylphenols and ketones or aldehydes  
4377-73-5DP, p-Quinonediimine, Mannich reaction products  
with polyalkenylphenols and ketones or aldehydes  
4430-06-2DP, 1,7-Heptanediamine, N-(7-aminoheptyl)-, Mannich  
reaction products with polyalkenylphenols and ketones or  
aldehydes 4511-99-3DP, 3-Amino-5,6-diphenyl-1,2,4-  
triazine, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes 4605-14-5DP,  
Tripropylenetetramine, Mannich reaction products with  
polyalkenylphenols and ketones or aldehydes 6168-72-5DP,

2-Amino-1-propanol, Mannich reaction products with polyalkenylphenols and ketones or aldehydes 6531-38-0DP,  
 1,4-Bis(2-aminoethyl)piperazine, Mannich reaction products with polyalkenylphenols and ketones or aldehydes  
 7347-31-1DP, 1H-Imidazole, 4,5-dihydro-2-octadecyl-, Mannich reaction products with polyalkenylphenols and ketones or aldehydes 7664-41-7DP, Ammonia, Mannich reaction products with polyalkenylphenols and ketones or aldehydes, uses 10368-06-6DP, 1,4-Benzenediamine, N,N'-dibutyl-, Mannich reaction products with polyalkenylphenols and ketones or aldehydes 13325-10-5DP, 4-Hydroxybutylamine, Mannich reaction products with polyalkenylphenols and ketones or aldehydes 13725-38-7DP, Cyclopentanol, 3-amino-, Mannich reaction products with polyalkenylphenols and ketones or aldehydes  
 14002-33-6DP, 1-Propanol, 3,3'-iminobis-, Mannich reaction products with polyalkenylphenols and ketones or aldehydes  
 15518-10-2DP, 3-Amino-2-methyl-1-propanol, Mannich reaction products with polyalkenylphenols and ketones or aldehydes 26976-66-9DP, Mannich reaction products with polyalkenylphenols and ketones or aldehydes  
 30525-89-4DP, Paraformaldehyde, Mannich reaction products with ethylenediamine and polyisobutylene phenol  
 39884-48-5DP, 3-Hydroxybutylamine, Mannich reaction products with polyalkenylphenols and ketones or aldehydes  
 77029-60-8DP, 1-Piperazineethanamine, ..alpha..-methyl-, Mannich reaction products with polyalkenylphenols and ketones or aldehydes 167427-04-5DP, Pyrazine, tetrahydro-, Mannich reaction products with polyalkenylphenols and ketones or aldehydes  
 315661-54-2DP, Mannich reaction products with polyalkenylphenols and ketones or aldehydes  
 315661-55-3DP, Mannich reaction products with polyalkenylphenols and ketones or aldehydes  
 315661-56-4DP, 1H-Imidazole-1,3(2H)-diethanamine, Mannich reaction products with polyalkenylphenols and ketones or aldehydes 315661-57-5DP, Mannich reaction products with polyalkenylphenols and ketones or aldehydes  
 315662-91-0DP, Mannich reaction products with polyalkenylphenols and ketones or aldehydes  
 (detergents; polyalkenylphenol-derived arom.  
 Mannich compds. as diesel fuel and gasoline detergents)  
 IT 64-17-5, Ethanol, uses 67-56-1, Methanol, uses 67-63-0, Isopropanol, uses 71-23-8, n-Propanol, uses 71-36-3, n-Butanol, uses 71-41-0, n-Pentanol, uses 96-41-3, Cyclopentanol 104-76-7, 2-Ethylhexanol 107-18-6, Allyl alcohol, uses 108-11-2, 2-Methyl-4-pentanol 108-93-0, Cyclohexanol, uses 111-27-3, n-Hexanol, uses 111-70-6, 1-Heptanol 111-87-5, Octanol, uses 112-30-1, Decanol 112-53-8, Dodecanol 112-72-1, Tetradecanol 112-92-5, Octadecanol 123-51-3, Isopentanol 598-32-3, Methyl vinyl carbinol 6117-91-5, Crotyl alcohol 36653-82-4, Hexadecanol (solvent; polyalkenylphenol-derived arom. Mannich

compds. as diesel fuel and gasoline detergents)

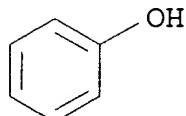
L60 ANSWER 5 OF 15 HCAPLUS COPYRIGHT 2002 ACS  
 1999:44925 Document No. 130:109712 Water-in-oil emulsion fertilizer compositions. Jahnke, Richard W.; Forsberg, John W.; Pearson, Nils O. (The Lubrizol Corporation, USA). U.S. US 5858055 A 19990112, 12 pp. (English). CODEN: USXXAM. APPLICATION: US 1997-946399 19971007.

AB A nonexplosive water-in-oil emulsion fertilizer compn. is provided which comprises: a discontinuous aq. phase comprising at least one fertilizer component; a continuous oil phase; an emulsifier comprising the **Mannich** reaction product of at least one hydrocarbyl-substituted phenol with at least one amine and at least one aldehyde.

IT 108-95-2D, Phenol, Polypropenyl deriv., uses 109-89-7D, DiEthylamine, Mannich reaction product with propylene-substituted phenol and paraformaldehyde (emulsifier in water-in-oil emulsion fertilizer compns.)

RN 108-95-2 HCAPLUS

CN Phenol (8CI, 9CI) (CA INDEX NAME)



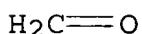
RN 109-89-7 HCAPLUS  
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



IC ICM C05C011-00  
 NCL 071027000  
 CC 19-6 (Fertilizers, Soils, and Plant Nutrition)  
 ST Mannich reaction product emulsifier fertilizer emulsion  
 IT Emulsifying agents (Mannich reaction products; for water-in-oil emulsion fertilizer compns.)  
 IT 61-82-5D, 3-Amino-1H-1,2,4-triazole, Mannich reaction product with hydrocarbyl-substituted phenol and paraformaldehyde 108-95-2D, Phenol, Polypropenyl deriv., uses 108-95-2D, Phenol, hydrocarbyl-substituted, Mannich reaction product with ammonia and paraformaldehyde, uses 109-89-7D, DiEthylamine, Mannich reaction product with propylene-substituted phenol and paraformaldehyde 111-41-1D, Mannich reaction product with

hydrocarbyl-substituted phenol and **paraformaldehyde**  
 111-42-2D, DiEthanolamine, **Mannich** reaction product with  
 propylene-substituted phenol and **paraformaldehyde**  
 141-43-5D, Ethanolamine, **Mannich** reaction product with  
 propylene-substituted phenol and **paraformaldehyde**  
 504-29-0D, 2-Aminopyridine, **Mannich** reaction product with  
 propylene-substituted phenol and **paraformaldehyde**  
 7664-41-7D, Ammonia, **Mannich** reaction product with  
 hydrocarbyl-substituted phenol and **paraformaldehyde**, uses  
 30525-89-4D, **Paraformaldehyde**, **Mannich** reaction  
 product with hydrocarbyl-substituted phenol and amine  
 (emulsifier in water-in-oil emulsion fertilizer compns.)

- L60 ANSWER 6 OF 15 HCAPLUS COPYRIGHT 2002 ACS  
 1995:426686 Document No. 122:192173 Two-stroke cycle lubricant and  
 method of using it. Chamberlin, William B. (Lubrizol Corp., USA).  
 Eur. Pat. Appl. EP 628622 A1 19941214, 25 pp. DESIGNATED STATES: R:  
 BE, DE, ES, FR, GB, IT, NL, SE. (English). CODEN: EPXXDW.  
 APPLICATION: EP 1994-303671 19940523. PRIORITY: US 1993-67780  
 19930526.
- AB A lubricant compn. suitable for fuel injected two-stroke cycle engines includes an oil of lubricating viscosity, and amt., sufficient to reduce or prevent piston scuffing, of a mixt. of (A) at least one phenol selected from (A-1) an aminophenol and (A-2) a reaction product of a nitrophenol and an amino compd., and (B) at least one **Mannich** dispersant, amine dispersant, nitrogen-contg. carboxylic dispersant, or ester dispersant. The compn. further includes an amt., sufficient to reduce degrdn. of the lubricant compn. upon exposure to oxygen or oxides of nitrogen, of a nitrogen-contg. inhibitor, a hindered phenol inhibitor, or a sulfur-contg. org. inhibitor.
- IT 50-00-0D, **Formaldehyde**, reaction products with polypropyl-substituted phenol and dimethylamine 124-40-3D,  
 Dimethylamine, reaction products with polypropyl-substituted phenol and **formaldehyde**  
 (dispersants; two-stroke cycle lubricants contg.)
- RN 50-00-0 HCAPLUS  
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



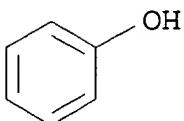
- RN 124-40-3 HCAPLUS  
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



- IT 108-95-2D, **Phenol**, polybutene  
 -substituted derivs., amine derivs.

(two-stroke cycle lubricants contg.)

RN 108-95-2 HCPLUS  
 CN Phenol (8CI, 9CI) (CA INDEX NAME)



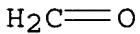
IC ICM C10M133-00  
 ICS C10M141-06; C10M141-08; C10M163-00  
 ICA C10N040-26  
 CC 51-8 (Fossil Fuels, Derivatives, and Related Products)  
 IT 50-00-0D, **Formaldehyde**, reaction products with polypropyl-substituted phenol and dimethylamine 77-86-1D, reaction products with polybutenylsuccinic anhydride and HPA Taft amines 79-10-7D, 2-Propenoic acid, reaction products with chlorinated polybutene and pentaerythritol 112-57-2D, reaction products with poly(iso)butenylsuccinic anhydride 115-77-5D, reaction products with chlorinated polybutene and acrylic acid 124-40-3D, Dimethylamine, reaction products with polypropyl-substituted phenol and **formaldehyde** 126-30-7D, reaction products with polybutene-substituted succinic anhydride (dispersants; two-stroke cycle lubricants contg.)  
 IT 108-30-5D, Succinic anhydride, polyisobutyl derivs., reaction products with polyethyleneamines 108-95-2D, **Phenol**, polybutene-substituted derivs., amine derivs.  
 24925-59-5 43126-79-0  
 (two-stroke cycle lubricants contg.)

L60 ANSWER 7 OF 15 HCPLUS COPYRIGHT 2002 ACS  
 1989:138508 Document No. 110:138508 **Mannich** base oil additives. Horodysky, Andrew G.; Gemmill, Robert M., Jr. (Mobil Oil Corp., USA). U.S. US 4787996 A 19881129, 6 pp. Cont. of U.S. Ser. No. 868,181, abandoned. (English). CODEN: USXXAM. APPLICATION: US 1987-38468 19870414. PRIORITY: US 1981-329773 19811211; US 1983-485525 19830415; US 1985-705867 19850228; US 1986-868181 19860521.

AB A lubricating oil-fuel oil additive is prep'd. by reaction of (1) a medium mol. wt. alkyl-substituted **phenol**, where the alkyl substituent is a branched oligomer made from a 1-olefin and having 1toreq.40 C atoms, (2) an **aldehyde**, and (3) a hydrocarbyl amine, where the resp. molar ratio of the reactants is 1:1-2:1-2. Thus, cocoamine 42, 1-decene trimer alkylated **phenol** 72, **paraformaldehyde** 6.5, and C6H6 (solvent) 100 g were placed in a glass reactor fitted with a N inlet and a condenser. The reaction mixt was heated in a N blanket to 115.degree. and the solvent was removed by vacuum distn. The product was filtered through diatomaceous earth at 70.degree. and evaluated in a low-velocity friction app. using a fully formulated

5W-20 engine oil. For an additive concn. of 4% in the oil, the  
redn. in the friction coeff. was 20-25%.

IT 50-00-0DP, **Formaldehyde, Mannich bases**  
with phenols and amines  
(lubricating and fuel oil additives, prepн. of)  
RN 50-00-0 HCAPLUS  
CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IT 111-92-2DP, Dibutylamine, Mannich bases with  
alkylphenols and **formaldehyde** 1120-48-5DP,  
Diocetylamine, Mannich bases with alkylphenols and  
**formaldehyde**  
(lubricating oil and fuel oil additives, prepн. of)  
RN 111-92-2 HCAPLUS  
CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



RN 1120-48-5 HCAPLUS  
CN 1-Octanamine, N-octyl- (9CI) (CA INDEX NAME)



IC ICM C10M133-00  
NCL 252051500R  
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)  
ST lubricating oil additive **Mannich base**; fuel oil additive  
**Mannich base**; **Mannich base** lubricating oil  
additive  
IT Fuel oil additives  
Lubricating oil additives  
(**Mannich bases**, prepн. of)  
IT **Mannich bases**  
(alkylphenol-coco alkyl amine-**formaldehyde**, prepн. of,  
for lubricants and fuels)  
IT **Mannich bases**  
(alkylphenol-**formaldehyde**-soya alkyl amine, prepн. of,  
for lubricants and fuels)  
IT 50-00-0DP, **Formaldehyde, Mannich bases**  
with phenols and amines 108-95-2DP, Phenol, alkali derivs.,  
**Mannich bases** with **aldehydes** and amines  
(lubricating and fuel oil additives, prepн. of)  
IT 75-07-0DP, **Acetaldehyde, Mannich bases** with  
alkylphenols and amines 78-90-0DP, Propylenediamine,

**Mannich bases with alkylphenols and formaldehyde**  
87-99-0DP, Xylitol, alkyl derivs., Mannich bases with aldehydes and amines 90-15-3DP, 1-Naphthalenol, alkyl derivs., Mannich bases with aldehydes and amines 98-01-1DP, Furfural, Mannich bases with alkylphenols and amines 100-52-7DP, Benzaldehyde, Mannich bases with alkylphenols and amines 101-83-7DP, Dicyclohexylamine, Mannich bases with alkylphenols and formaldehyde  
107-15-3DP, Ethylenediamine, Mannich bases with alkylphenols and formaldehyde 107-89-1DP, .beta.-Hydroxybutyraldehyde, Mannich bases with alkylphenols and amines 108-91-8DP, Cyclohexylamine, Mannich bases with alkylphenols and formaldehyde  
108-95-2DP, Phenol, alkyl derivs., Mannich bases with aldehydes and amines 110-90-7DP, Trimethylenetriamine, Mannich bases with alkylphenols and formaldehyde  
111-40-0DP, Diethylenetriamine, Mannich bases with alkylphenols and formaldehyde 111-42-2DP, Diethanolamine, Mannich bases with alkylphenols and formaldehyde 111-86-4DP, Octylamine, Mannich bases with alkylphenols and formaldehyde  
111-92-2DP, Dibutylamine, Mannich bases with alkylphenols and formaldehyde 112-20-9DP, Nonylamine, Mannich bases with alkylphenols and formaldehyde  
112-24-3DP, Triethylenetetramine, Mannich bases with alkylphenols and formaldehyde 112-57-2DP, Tetraethylenepentamine, Mannich bases with alkylphenols and formaldehyde 112-90-3DP, Oleylamine, Mannich bases with alkylphenols and formaldehyde 124-22-1DP, Dodecylamine, Mannich bases with alkylphenols and formaldehyde 124-30-1DP, Octadecylamine, Mannich bases with alkylphenols and formaldehyde 135-19-3DP, Beta naphthol, alkyl derivs., Mannich bases with aldehydes and amines 141-43-5DP, Ethanolamine, Mannich bases with alkylphenols and formaldehyde  
143-27-1DP, Hexadecylamine, Mannich bases with alkylphenols and formaldehyde 1120-48-5DP, Dioctylamine, Mannich bases with alkylphenols and formaldehyde 1319-77-3DP, Cresol, alkyl derivs., Mannich bases with aldehydes and amines  
1322-20-9DP, Hydroxydiphenyl, alkyl derivs., Mannich bases with aldehydes and amines 1322-51-6DP, Benzylphenol, alkyl derivs., Mannich bases with aldehydes and amines 2016-42-4DP, Tetradecylamine, Mannich bases with alkylphenols and formaldehyde 2016-57-1DP, Decylamine, Mannich bases with alkylphenols and formaldehyde  
4403-32-1DP, Hexaethyleneheptamine, Mannich bases with alkylphenols and formaldehyde 5452-37-9DP, Cyclooctylamine, Mannich bases with alkylphenols and formaldehyde  
(lubricating oil and fuel oil additives, prep. of)

L60 ANSWER 8 OF 15 HCAPLUS COPYRIGHT 2002 ACS

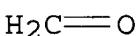
1988:633982 Document No. 109:233982 Phosphite ester compositions, and lubricants and functional fluids containing same as extreme-pressure and/or friction-modifying additives. Scharf, Curtis R.; Di Biase, Stephen A.; Tritt, William C. (Lubrizol Corp., USA). PCT Int. Appl. WO 8804313 A2 19880616, 104 pp. DESIGNATED STATES: RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1987-US3211 19871204. PRIORITY: US 1986-940693 19861211.

AB Lubricating oil and grease, functional fluid, and aq. system compns. comprise an extreme-pressure and/or friction-modifying amt. of (A) >1 phosphite ester characterized by the formula (R1O)(R2O)P(O)H (R1 = C512 straight-chain hydrocarbyl, R2 = C.ltoreq.12 branched-chain hydrocarbyl), and or (B) >1 S-contg. compn. selected from (1) >1 sulfurized olefin, (2) hydroxythioether, (3) N- and S-contg. compns. obtained by the reaction of >1 amino compd., CS2, and either hydrocarbon-substituted carboxylic acids or halogenated aliph. hydrocarbons, and (4) sulfurized and/or CS2 reacted Mannich condensation products. Thus, a lubricating oil compn. contains a mixed phosphite (reaction products of 2-ethylhexanol, Alfol 810, and di-Me phosphite) 0.80, a hydroxythioether (propylene oxide-tert-dodecyl mercaptan reaction products) 0.75, C9 mono- and di-p-alkylated diphenylamine 0.35, basic Na petroleum sulfonate 0.25, basic Ca petroleum sulfonate 0.40 wt. part, 70 ppm silicone antifoam agent, and remainder a base oil.

IT 50-00-0D, Formaldehyde, Mannich reaction products with alkyl-substituted phenol, alkylene polyamine, carbon disulfide, and/or polybutenyl succinic anhydride 2050-92-2D, Diamylamine, reaction products with polyisobutetyl and carbon disulfide chloride (extreme-pressure and/or friction-modifying additives contg., for lubricants and functional fluids)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 2050-92-2 HCAPLUS

CN 1-Pentanamine, N-pentyl- (9CI) (CA INDEX NAME)



IC ICM C10M141-10

ICS C10M137-04; C10M173-02

ICI C10M141-10, C10M133-52, C10M135-02, C10M135-24, C10M137-04, C10M159-16; C10M173-02, C10M133-52, C10M135-02, C10M135-24, C10M137-04, C10M159-16; C10N030-06, C10N040-04, C10N060-10

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

IT 50-00-0D, **Formaldehyde**, Mannich reaction products with alkyl-substituted **phenol**, alkylene polyamine, carbon disulfide, and/or **polybutenyl succinic anhydride** 60-24-2D, 2-Mercaptoethanol, reaction products with 1-decene 71-36-3D, n-Butanol, reaction products with dimethylphosphite and 2-ethylhexanol 75-15-0D, Carbon disulfide, reaction products with polyisobutetyl succinic anhydride or chloride and polyalkylene polyamines 75-21-8D, Ethylene oxide, reaction products with tert-dodecyl mercaptan 75-56-9D, Propylene oxide, reaction products with (poly)mercaptans 96-09-3D, Styrene oxide, reaction products with tert-dodecyl mercaptan 104-76-7D, reaction products with dimethylphosphite and alcs. 108-30-5D, Succinic anhydride, polyisobutetyl derivs., reaction products with polyalkylene polyamines and carbon disulfide 108-95-2D, Phenol, **polybutyl**-substituted, reaction products with **formaldehyde**, tetraethylenepentamine, and carbon disulfide 111-40-0D, Diethylenetriamine, reaction products with polyisobutetyl and carbon disulfide chloride 112-24-3D, Triethylene tetramine, reaction products with polysibutylene-substituted succinic anhydride and carbon disulfide 112-55-0D, n-Dodecyl mercaptan, reaction products with propylene oxide 112-57-2D, Tetraethylenepentamine, reaction products with polysibutylene-substituted succinic anhydride and carbon disulfide 868-85-9D, Dimethylphosphite, reaction products with straight- and branched-chain alcs. 872-05-9D, 1-Decene, reaction products with 2-mercaptopethanol 2050-92-2D, Diamylamine, reaction products with polyisobutetyl and carbon disulfide chloride 4067-16-7D, Pentaethylenehexamine, reaction products with polyisobutetyl and carbon disulfide chloride 7704-34-9D, Sulfur, reaction products with **Mannich condensates** 9003-07-0D, Polypropylene, mixts. with pine oil, sulfurized 9003-27-4D, chloride 9003-29-6D, mercapto derivs. 25103-58-6D, tert-Dodecyl mercaptan, reaction products with epoxides 25154-52-3D, reaction products with tetraethylenepentamine, **formaldehyde**, polybutenyl succinic anhydride, and carbon disulfide 57425-57-7D, Polyamine H, reaction products with polyisobutylene-substituted succinic anhydride and carbon disulfide (extreme-pressure and/or friction-modifying additives contg., for lubricants and functional fluids)

L60 ANSWER 9 OF 15 HCPLUS COPYRIGHT 2002 ACS  
 1987:535973 Document No. 107:135973 Cationic epoxy resins. Paar, Willibald; Hoenel, Michael (Vianova Kunsthärz A.-G., Austria). Eur. Pat. Appl. EP 213626 A2 19870311, 21 pp. DESIGNATED STATES: R: BE, CH, DE, FR, GB, IT, LI, NL, SE. (German). CODEN: EPXXDW.  
 APPLICATION: EP 1986-112063 19860901. PRIORITY: AT 1985-2591 19850905; AT 1986-2060 19860731.

AB Compns. useful as binders for cathodic electrodip coatings are prep'd. by the reaction of adducts of 2 mol reaction product of phenols, **HCHO**, and primary amines and 1 mol diisocyanate with diepoxides (phenolic OH-epoxy group ratio 1:1) and reaction of residual epoxy groups with amines and/or carboxyl compds. A 70g soln. of adduct (mol. wt. 820) was prep'd. from butylphenol 300, 91%

**paraformaldehyde** 66, iso-BuNH<sub>2</sub> 146, and trimethylhexamethylene isocyanate 210 parts. Heating this compn. 181, bisphenol A epoxy resin (epoxy equiv. 475) 475, Et<sub>3</sub>N 0.5, and methoxypropanol 204 parts at 110.degree., cooling, heating with 26 parts Et<sub>2</sub>N(CH<sub>2</sub>)<sub>3</sub>NH<sub>2</sub> and 21 parts diethanolamine at 80.degree., and dilg. with methoxypropanol to 65% solids gave a compn. with amine no. 51 mg KOH/g. A dispersion of this resin (HCO<sub>2</sub>H-neutralized) 80, malonate ester crosslinker 20, and H<sub>2</sub>O 595 parts gave a film with cure time 30 min at 165.degree..

IT 50-00-0D, **Formaldehyde**, reaction products with phenols, amines, diisocyanates and epoxy resins 109-89-7D,  
**Diethylamine**, reaction products with epoxy resins and **Mannich bases**  
 (binders, for cathodic electrodip coatings)

RN 50-00-0 HCPLUS  
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 109-89-7 HCPLUS  
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



IC ICM C08G059-18  
 ICS C08G059-14; C08G059-40; C08G014-12; C08G018-54; C09D005-44  
 CC 42-7 (Coatings, Inks, and Related Products)  
 ST electrophoretic coating cathodic binder; epoxy resin adduct coating;  
**Mannich base adduct coating; isocyanate adduct coating;**  
 butylphenol **Mannich base coating; aminated epoxy resin**  
 coating  
 IT **Mannich bases**  
 (reaction products with epoxy resins and amines, binders for  
 cathodic electrodip coatings)  
 IT Amines, compounds  
 (reaction products with **formaldehyde**, phenols,  
 diisocyanates and epoxy resins, for cathodic electrodip coatings)  
 IT Phenols, compounds  
 (reaction products with **formaldehydes**, amines,  
 diisocyanates and epoxy resins, for cathodic electrodip coatings)  
 IT Coating materials  
 (electrophoretic, cathodic, binders for, epoxy resin-  
**Mannich base-amine reaction products as**)  
 IT 50-00-0D, **Formaldehyde**, reaction products with  
 phenols, amines, diisocyanates and epoxy resins 78-81-9D,  
**Isobutylamine**, reaction products with **formaldehyde**  
 , phenols, and epoxy resins 78-96-6D, Isopropanolamine,  
 reaction products with **formaldehyde**, phenols, and epoxy

resins 80-05-7D, Bisphenol A, reaction products with **formaldehyde**, amines, diisocyanates and epoxy resins 104-75-6D, 2-Ethylhexylamine, reaction products with epoxy resins and **Mannich** bases 104-78-9D, N,N-Diethyl-1,3-propanediamine, reaction products with **formaldehyde**, phenols, and epoxy resins 108-95-2D, Phenol, reaction products with **formaldehyde**, amines, diisocyanates and epoxy resins 109-55-7D, N,N-Dimethyl-1,3-propanediamine, reaction products with epoxy resins and **Mannich** bases 109-83-1D, 2-(Methylamino)ethanol, reaction products with epoxy resins and **Mannich** bases 109-89-7D, Diethylamine, reaction products with epoxy resins and **Mannich** bases 111-26-2D, Hexylamine, reaction products with **formaldehyde**, phenols, and epoxy resins 111-42-2D, Diethanolamine, reaction products with epoxy resins and **Mannich** bases 576-26-1D, 2,6-Dimethylphenol, reaction products with **formaldehyde**, amines, diisocyanates and epoxy resins 4098-71-9D, Isophorone diisocyanate, reaction products with **Mannich** bases and epoxy resins 25068-38-6D, reaction products with **Mannich** bases and amines 25154-52-3D, Nonylphenol, reaction products with **formaldehyde**, amines, diisocyanates and epoxy resins 26471-62-5D, reaction products with **Mannich** bases and epoxy resins 28679-16-5D, Trimethylhexamethylene diisocyanate, reaction products with **Mannich** bases and epoxy resins 28805-86-9D, Butylphenol, reaction products with **formaldehyde**, amines, diisocyanates and epoxy resins 54634-94-5D, reaction products with epoxy resins and **Mannich** bases 63306-05-8D, reaction products with epoxy resins and **Mannich** bases 87139-40-0D, Bisphenol F, reaction products with **formaldehyde**, amines, diisocyanates and epoxy resins 107375-15-5D, reaction products with epoxy resins and **Mannich** bases 110217-16-8D, reaction products with **Mannich** bases and epoxy resins  
 (binders, for cathodic electrodip coatings)

L60 ANSWER 10 OF 15 HCPLUS COPYRIGHT 2002 ACS

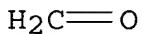
1985:169533 Document No. 102:169533 Alkylphenol and aminophenol compositions and two-cycle engine oils and fuels containing same. Davis, Kirk Emerson (Lubrizol Corp., USA). PCT Int. Appl. WO 8403901 A1 19841011, 78 pp. DESIGNATED STATES: W: AU, BR, DK, FI, JP, NO; RW: BE, DE, FR, GB, NL, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1984-US456 19840323. PRIORITY: US 1983-481109 19830331.

AB Lubricating oil additive compns. contain at least one alkylphenol and one aminophenol; these additives can be added to lubricating oil for use in 2-cycle engines. INT: Thus, a 2-cycle engine oil blend consisting of polyisobutylene phenol (polyisobutene no.-av. mol. wt. 1000) 2.0, aminophenol (prepd. by treating a polyisobutylene phenol with HNO<sub>3</sub> and redn. to amine form by H in presence by Pt oxide) 4.0, acylated polyamine detergent (prepd. by reacting tetraethylenepentamine with isostearic acid) 2.5, and lubricating base oil 91.5 wt. parts, well illustrates the invention.

IT 50-00-0D, Mannich reaction products with phenols and amines 108-95-2D, aminoalkyl and **polyalkenyl** derivs. 124-40-3D, Mannich reaction products with phenols and **formaldehyde** (lubricating oil additives)

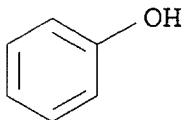
RN 50-00-0 HCPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 108-95-2 HCPLUS

CN Phenol (8CI, 9CI) (CA INDEX NAME)



RN 124-40-3 HCPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC C10M001-34; C10M001-20; C10M001-14

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

IT 50-00-0D, Mannich reaction products with phenols and amines 50-70-4D, esters with polyisobutylcarboxylic acid 80-05-7D, alkyl derivs. 90-15-3D, alkyl derivs. 91-22-5D, alkyl derivs. 92-88-6D, alkyl derivs. 108-95-2D, aminoalkyl and **polyalkenyl** derivs. 109-00-2D, alkyl derivs. 112-57-2D, reaction products with isostearic acid 115-77-5D, esters with polyisobutylcarboxylic acid 124-40-3D, Mannich reaction products with phenols and **formaldehyde** 126-30-7D, ester with alkyl succinic anhydride 613-14-9D, alkyl derivs. 21093-23-2 30399-84-9D, reaction products with polyethylene polyamines (lubricating oil additives)

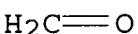
L60 ANSWER 11 OF 15 HCPLUS COPYRIGHT 2002 ACS  
 1984:71066 Document No. 100:71066 Lubricant compositions, containing alkylphenols, for 2-stroke engines. Davis, Kirk Emerson (Lubrizol Corp., USA). Ger. Offen. DE 3320396 A1 19831208, 81 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1983-3320396 19830606. PRIORITY: US 1982-385990 19820607.

AB Lubricating oil compns. for 2-stroke engines contain 4.5-15% of an alkylated **phenol** or its derivs. and 1.5-3% of a

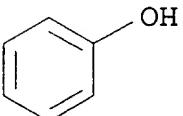
detergent-dispersant compn. Suitable alkylphenol compns. include **polyisobutenylphenol**, polypropylenephenol (or their bis(methylol) derivs.), and alkyl derivs. of dihydroxybiphenyl, resorcinol, .alpha.-naphthol, anthracenol, quinolinol, and hydroxypyridine. The detergents-dispersants include overbased alk. earth metal additives, **Mannich bases**, polyacid-polyamine condensation products, and polyacid-alc. condensation products (e.g., reaction products of **polyisobutylsuccinic anhydride** with neopentyl glycol and pentaerythritol).

IT 50-00-0D, reaction products with polyalkenylphenols  
 108-95-2D, **polyalkenyl** derivs., reaction products with **formaldehyde** and amines 124-40-3D, reaction products with polypropenylphenol and **formaldehyde** (lubricating oil additives, for two-stroke engines)

RN 50-00-0 HCAPLUS  
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 108-95-2 HCAPLUS  
 CN Phenol (8CI, 9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS  
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC C10M001-20; C10M003-14  
 CC 51-8 (Fossil Fuels, Derivatives, and Related Products)  
 IT **Mannich bases**  
     (lubricating oil additives, for two-stroke engines)  
 IT 50-00-0D, reaction products with polyalkenylphenols  
 50-70-4D, reaction products with acrylic acid and chlorinated polyisobutene 79-10-7D, reaction products with chlorinated polyisobutene and sorbitol or pentaerythritol 90-15-3D, 4-polyisobutenyl derivs. 92-88-6D, 2,2'-bis(polyisobutenyl) derivs. 108-30-5D, polyisobutenyl derivs., reaction products with acids and alcs. or polyamines 108-95-2D, **polyalkenyl** derivs., reaction products with **formaldehyde** and amines 109-00-2D, 4-polyisobutenyl derivs. 111-40-0D, reaction products with isostearic acid

112-57-2D, reaction products with chlorinated polyisobutene  
 115-77-5D, mixed esters with polyisobutene-derived carboxylic acids  
**124-40-3D**, reaction products with polypropenylphenol and  
**formaldehyde** 148-24-3D, polypropenyl derivs. 9002-98-6D,  
 reaction products with polyisobutenylsuccinic anhydride  
 9003-27-4D, chloro derivs., reaction products with polyamines or  
 acrylic acid-alc. condensation products 21093-23-2 30399-84-9D,  
 reaction products with polyamines and polyisobutenylsuccinic  
 anhydride 88707-55-5  
 (lubricating oil additives, for two-stroke engines)

L60 ANSWER 12 OF 15 HCPLUS COPYRIGHT 2002 ACS

1979:613692 Document No. 91:213692 Sulfurized **Mannich**  
 condensation products and lubricants containing them. Davis, Kirk  
 E. (Lubrizol Corp., USA). U.S. US 4161475 19790717, 7 pp.  
 Cont.-in-part of U.S. 4,090,854. (English). CODEN: USXXAM.  
 APPLICATION: US 1977-834618 19770919.

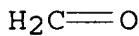
AB Lubricating oil sludge dispersants were prep'd. by treating a  
**Mannich** condensation product of a **phenolic** compd.,  
 an **aldehyde**, and an amine with elemental S. Thus, 400  
 parts **polyisobutenylphenol** was reacted with 12 parts  
**paraformaldehyde** and 41 parts pentaethylenehexamine at  
 140.degree. for 4 h under N. An addnl. 12 parts  
**paraformaldehyde** was added, and the mixt. was reacted at  
 160.degree. for 12 h. The product contained 1.87% N and it was  
 reacted with S flowers at 160.degree. for 10 h to contain 1.43% S  
 and 1.79% N. The **Mannich** condensate is used at 1-10%  
 concn. based on the total vol. of the lubricant.

IT 50-00-0D, reaction products with amines and alkylphenols  
**124-40-3D**, reaction products with **formaldehyde** and  
 alkylphenols

(lubricating oil dispersants)

RN 50-00-0 HCPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 124-40-3 HCPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC C07G017-00

NCL 260132000

CC 51-7 (Fossil Fuels, Derivatives, and Related Products)

ST **Mannich** condensation product dispersant lubricant

IT Lubricating oil additives

(dispersants, sulfurized **Mannich** condensation products)

IT 50-00-0D, reaction products with amines and alkylphenols  
 106-50-3D, reaction products with alkylphenols and  
**paraformaldehyde** 108-95-2D, alkyl derivs., reaction  
 products with **formaldehyde** and amines 110-91-8D,  
 reaction products with **formaldehyde** and alkylphenols  
 112-90-3D, reaction products with dibutylphenol and  
**paraformaldehyde** 124-22-1D, reaction products with  
**paraformaldehyde** and alkylphenols 124-40-3D,  
 reaction products with **formaldehyde** and alkylphenols  
 4067-16-7D, reaction products with **paraformaldehyde** and  
 alkylphenols 7803-57-8D, reaction products with  
**paraformaldehyde** and alkylphenols 26746-38-3D, reaction  
 products with amines and **aldehydes** 30525-89-4D, reaction  
 products with amines and alkylphenols  
 (lubricating oil dispersants)

L60 ANSWER 13 OF 15 HCPLUS COPYRIGHT 2002 ACS

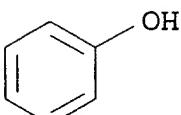
1977:109038 Document No. 86:109038 Sulfur-containing **Mannich**  
 condensation products and liquid fuels and propellants and  
 lubricants containing these compounds. Davis, Kirk E. (Lubrizol  
 Corp., USA). Ger. Offen. DE 2551256 19760812, 28 pp. (German).  
 CODEN: GWXXBX. APPLICATION: DE 1975-2551256 19751114.

AB Additives for improving thermal stability and oxidn. characteristics  
 of engine lubricants, gasolines, and transmission fluids are prep'd.  
 by reacting amorphous or cryst. S with **Mannich**  
 condensation products, e.g. from the reaction of a (  
**polyisobutenyl phenol** (I), pentaethylenehexamine  
 (II) [4067-16-7], and **paraformaldehyde** (III) [30525-89-4].  
 Thus, a I (no. av. mol. wt. 885) prep'd. from PhOH and  
**polyisobutene** was reacted with II and III, mixed with oil  
 and filtered to yield a 40% oil soln. of a **Mannich**  
 condensation product contg. 1.87% N. This product was then reacted  
 with amorphous S to yield a 40% oil soln. of the additive contg. N  
 1.79 and S 1.43%. The additive soln. was used in gasoline contg.  
 Et4Pb. A similarly prep'd. 40% oil soln. of an additive contg. N  
 1.42 and S 0.89% was used in SAE 10W-40 motor oil.

IT 108-95-2D, alkyl and **polyalkenyl** derivs.,  
**Mannich** condensation products with amines and  
**formaldehyde**, sulfurized 124-40-3D,  
**Mannich** condensation products with alkylphenols and  
**formaldehyde**, sulfurized  
 (antioxidants, for gasoline and lubricating oils)

RN 108-95-2 HCPLUS

CN Phenol (8CI, 9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS  
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC C08G014-06  
 CC 51-7 (Fossil Fuels, Derivatives, and Related Products)  
 Section cross-reference(s): 50  
 ST Mannich condensation product sulfurized; lubricant  
 antioxidant Mannich; gasoline antioxidant Mannich  
 IT Gasoline additives  
 Lubricating oil additives  
 (antioxidants, Mannich condensation products,  
 sulfurized)  
 IT Hydraulic fluids  
 (transmission, Mannich condensation products,  
 sulfurized, additives in)  
 IT 106-50-3D, Mannich condensation products with  
 formaldehyde and alkylphenols, sulfurized 108-95-2D  
 , alkyl and polyalkenyl derivs., Mannich  
 condensation products with amines and formaldehyde,  
 sulfurized 110-91-8D, Mannich condensation products with  
 propylene tetramer phenol and formaldehyde, sulfurized  
 112-90-3D, Mannich condensation products with  
 di(tert-butyl)phenol and formaldehyde, sulfurized  
 124-40-3D, Mannich condensation products with  
 alkylphenols and formaldehyde, sulfurized 4067-16-7D,  
 Mannich condensation products with polyisobutenylophenol and  
 formaldehyde, sulfurized 7803-57-8D, Mannich  
 condensation products with alkylphenols and formaldehyde,  
 sulfurized 26746-38-3D, Mannich condensation products  
 with oleylamine and formaldehyde, sulfurized  
 26997-02-4D, Mannich condensation products with  
 dodecylaniline and formaldehyde, sulfurized 28675-17-4D,  
 Mannich condensation products with heptylphenol and  
 formaldehyde, sulfurized 28805-86-9D, Mannich  
 condensation products with amines and formaldehyde,  
 sulfurized 30525-89-4D, Mannich condensation products  
 with amines and phenols, sulfurized 57427-55-1D, Mannich  
 condensation products with amines and formaldehyde,  
 sulfurized  
 (antioxidants, for gasoline and lubricating oils)

L60 ANSWER 14 OF 15 HCAPLUS COPYRIGHT 2002 ACS  
 1975:596127 Document No. 83:196127 Liquid hydrocarbon fuels containing  
 Mannich bases or derivatives thereof. Dix, Robert W.  
 (Lubrizol Corp., USA). U.S. US 3877889 19750415, 4 pp. (English).  
 CODEN: USXXAM. APPLICATION: US 1973-413488 19731107.  
 AB An additive providing fuels with dispersant, anticicing, and  
 rust-inhibiting properties was prep'd. by the Mannich

reaction between an alkylphenol,  $(\text{HCHO})_x$  [30525-89-4] and diethanolamine [111-42-2]. Adducts of the product with epoxides are also useful as fuel additives.

IT 108-18-9  
     (Mannich reaction with (tetrapropylene)phenol)  
 RN 108-18-9 HCPLUS  
 CN 2-Propanamine, N-(1-methylethyl)- (9CI) (CA INDEX NAME)

i-Pr-NH-Pr-i

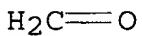
IC C10L  
 NCL 044073000  
 CC 51-6 (Fossil Fuels, Derivatives, and Related Products)  
 ST Mannich product fuel additive; gasoline additive  
     Mannich base  
 IT Gasoline additives  
     (anticicing and antiirust dispersants, Mannich bases of phenols)  
 IT Oxirane, methyl-, reaction products with  
     (tetrapropylene) [[bis(hydroxyethyl)amino]methyl]phenol  
     Phenol, polyisobut enyl derivs., reaction  
     products with diethanolamine and paraformaldehyde  
     Phenol, [[bis(2-hydroxyethyl)amino]methyl](tetrapropylene)-,  
     propoxylated  
     Phenol, [[bis(2-hydroxyethyl)amino]methyl]-,  
     polyisobut enyl derivs.  
     (gasoline additives)  
 IT 108-18-9 111-41-1  
     (Mannich reaction with (tetrapropylene)phenol)  
 IT 57427-55-1  
     (Mannich reaction with alkanolamines)  
 IT 111-42-2, reactions  
     (Mannich reaction with alkylphenols)  
 IT 30525-89-4  
     (Mannich reaction with alkylphenols and alkanolamines)  
 IT 26997-02-4  
     (Mannich reaction with diethanolamine)

L60 ANSWER 15 OF 15 HCPLUS COPYRIGHT 2002 ACS  
 1974:570490 Document No. 81:170490 High-molecular-weight hybrid  
 electrolytes. Fujiwara, Hiroshi; Sekiya, Masaaki; Suzuki, Hiroshi  
 (Maruzen Oil Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 49053283  
 19740523 Showa, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP  
 1972-95296 19720922.

AB Copolymers of p-hydroxystyrene(I) and acrylic acid, methacrylic acid, or maleic anhydride (II) were Mannich-reacted with secondary amines and reactive HCHO derivs. and optionally quaternized with halogenated hydrocarbons or dialkyl sulfates to give the title compds. For example, 5.6 g hydrolysis product of a mixt. (20 mole % I) of poly(p-hydroxystyrene) [24979-70-2] and I-II

copolymer [41222-39-3] was dissolved at room temp. in EtOH, mixed at 0.deg. with 19 ml diethylamine [109-89-7] and 30 ml of 37 % aq. HCHO [50-00-0], reacted for 2 hr, and the filtrate sepd. from the solvent to give 3.5 g H<sub>2</sub>O-sol. product.

IT 50-00-0, reactions  
 (with hydroxystyrene copolymer and diethylamine, high-mol. wt.  
 electrolytes from)  
 RN 50-00-0 HCPLUS  
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IT 109-89-7, reactions  
 (with hydroxystyrene copolymers and formaldehyde,  
 high-mol. wt. electrolytes from)  
 RN 109-89-7 HCPLUS  
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



NCL 26(3)F115.2  
 CC 36-3 (Plastics Manufacture and Processing)  
 ST hydroxystyrene electrolyte; Mannich reaction  
 hydroxystyrene copolymer; maleic anhydride hydroxystyrene copolymer  
 IT Mannich reaction  
 (of hydroxystyrene copolymers, high-mol. wt. electrolytes from)  
 IT 2,5-Furandione, polymer with 4-ethenylphenol, hydrolysis products  
 Phenol, 4-ethenyl-, homopolymer, hydrolysis  
 products  
 Phenol, 4-ethenyl-, polymer with 2,5-furandione,  
 hydrolysis products  
 (Mannich reaction with, high mol. wt. electrolytes  
 from)  
 IT 50-00-0, reactions  
 (with hydroxystyrene copolymer and diethylamine, high-mol. wt.  
 electrolytes from)  
 IT 109-89-7, reactions  
 (with hydroxystyrene copolymers and formaldehyde,  
 high-mol. wt. electrolytes from)

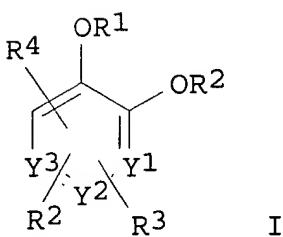
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 may or may not be that  
 useable from here on

L61 ANSWER 1 OF 26 HCPLUS COPYRIGHT 2002 ACS  
 2002:695930 Document No. 137:232440 Preparation of benzene-1,2-diol  
 Mannich bases, their polymers and their use in selective  
 metal ion extraction. Solomon, David H.; Caulfield, Marcus J.;  
 Russo, Tiziana; Shaw, Ray; McAllister, Duncan J. (Technological

Resources Pty. Limited, Australia). PCT Int. Appl. WO 2002070456 A1 20020912, 64 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-AU243 20020301. PRIORITY: AU 2001-3464 20010301; AU 2001-5484 20010605.

GI



AB **Mannich bases I** [Y1-Y3 = CH, N; R1, R2 = H, (un)substituted alkyl, alkenyl, alkynyl, aryl, protecting group; R3 = H, (un)substituted alkyl, alkenyl, alkynyl, aryl, carbocyclic, heterocyclic; R4 = H, OH, etherified OH; X = aminoalkylene] were prep'd. and complexed with Si or Al for selective extn. from aq. into org. solvents, such as in a Bayer process. Polymers of I are also claimed. Thus, guaiacol was treated with CH<sub>2</sub>O and Bu<sub>2</sub>NH to give 2,3-HO(MeO)C<sub>6</sub>H<sub>3</sub>CH<sub>2</sub>NBu<sub>2</sub> which was demethylated and complexed with Si or Al. The Si complex was partitioned between water and MeCOEt to give 64% recovery of Si from the MeCOEt phase. Similarly partitioning of the Al complex between water and AcOEt gave 90% recovery from the AcOEt phase.

IT 143-16-8, Dihexylamine 1120-48-5, Dioctylamine  
39190-86-8, N-Propyl-2-pentanamine  
(prepn. of benzene-1,2-diol Mannich bases, their polymers and their use in selective metal ion extn.)

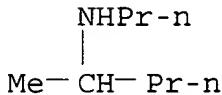
RN 143-16-8 HCPLUS  
CN 1-Hexanamine, N-hexyl- (9CI) (CA INDEX NAME)



RN 1120-48-5 HCPLUS  
CN 1-Octanamine, N-octyl- (9CI) (CA INDEX NAME)

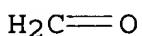


RN 39190-86-8 HCPLUS  
 CN 2-Pentanamine, N-propyl- (9CI) (CA INDEX NAME)



IC ICM C07C215-50  
 ICS C07F005-06; C07F007-02; C02F001-60; C02F001-58; C02F001-42  
 CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
 Section cross-reference(s): 56, 78  
 ST benzenediol Mannich base prepn metal ion  
 complexation; extn water aluminum silicon  
 aminomethylenebenzenediol  
 IT Bayer process  
 Extractants  
 Partition  
 (prep. of benzene-1,2-diol Mannich bases, their  
 polymers and their use in selective metal ion extn.)  
 IT Mannich bases  
 (prep. of benzene-1,2-diol Mannich bases, their  
 polymers and their use in selective metal ion extn.)  
 IT 120-80-9D, Catechol, complexes  
 (prep. of benzene-1,2-diol Mannich bases, their  
 polymers and their use in selective metal ion extn.)  
 IT 405162-08-5P 405162-09-6P 405162-10-9P 405162-11-0P  
 457890-69-6P 457890-71-0P 457890-73-2P 458569-82-9P  
 458569-84-1P 458569-86-3P 458569-88-5P 458569-90-9P  
 (prep. of benzene-1,2-diol Mannich bases, their  
 polymers and their use in selective metal ion extn.)  
 IT 90-05-1, Guaiacol 110-70-3, N,N'-Dimethylethylenediamine  
 110-85-0, Piperazine, reactions 111-33-1, N,N'-Dimethyl-1,3-  
 propanediamine 111-74-0, N,N'-Diethylethylenediamine 120-80-9,  
 1,2-Benzenediol, reactions 143-16-8,  
 Dihexylamine 1120-48-5, Dioctylamine 39190-86-8,  
 N-Propyl-2-pentanamine  
 (prep. of benzene-1,2-diol Mannich bases, their  
 polymers and their use in selective metal ion extn.)  
 IT 24773-90-8P 40792-28-7P, 2-Diethylaminomethyl-6-methoxyphenol  
 43060-63-5P, 2-Dimethylaminomethyl-6-methoxyphenol 94483-71-3P,  
 3-Dimethylaminomethyl-1,2-benzenediol 124672-67-9P,  
 2-Dibutylaminomethyl-6-methoxyphenol 322648-91-9P 322648-92-0P  
 322648-93-1P 322648-94-2P 322648-96-4P 322648-98-6P,  
 3-Diethylaminomethyl-1,2-benz nediol 322648-99-7P,  
 3-Dipropylaminomethyl-1,2-benzenediol 322649-00-3P,  
 3-Dibutylaminomethyl-1,2-benzenediol 322649-01-4P,

- 2-Dipropylaminomethyl-6-methoxyphenol  
 (prepn. of benzene-1,2-diol **Mannich** bases, their polymers and their use in selective metal ion extn.)
- IT 7429-90-5DP, Aluminum, complexes with **catechol**  
**Mannich** bases 7440-21-3DP, Silicon, complexes with **catechol** **Mannich** bases 7440-32-6DP, Titanium, complexes with **catechol** **Mannich** bases 7440-42-8DP, Boron, complexes with **catechol**  
**Mannich** bases 322648-95-3P 322648-97-5P 457890-66-3P  
 457890-68-5P  
 (prepn. of benzene-1,2-diol **Mannich** bases, their polymers and their use in selective metal ion extn.)
- L61 ANSWER 2 OF 26 HCPLUS COPYRIGHT 2002 ACS  
 2001:895570 Document No. 136:21825 Organic compounds for inhibition of pyrophoric iron sulfide ignition, especially in petroleum refining, transportation, and storage. Roling, Paul V.; Parker, Wiley L.; Goliaszewski, Alan E.; Williams, Timothy S.; Groce, Bernard C.; Sintim, Quincy K. A. (BetzDearborn Inc., USA). U.S. US 6328943 B1 20011211, 8 pp. (English). CODEN: USXXAM. APPLICATION: US 1998-112882 19980709.
- AB The pyrophoric activity of iron sulfides (e.g., prep'd. from petroleum refining by action of H<sub>2</sub>S in petroleum feedstocks and petroleum products with iron oxides during transportation, processing, and storage in reducing atmospheres or in the absence of air or oxygen) is inhibited by contacting these iron sulfides or precursors in the liq. phase in the presence of air with a substance that inhibits the oxidn. activity of the iron sulfides. The iron sulfides in question can be derived by reaction with goethite [FeO(OH)], hematite (Fe<sub>2</sub>O<sub>3</sub>), and magnetite (Fe<sub>3</sub>O<sub>4</sub>), to form such in-situ sulfides as mackinawite (FeS<sub>x</sub>), greigite (Fe<sub>3</sub>S<sub>4</sub>), and pyrite (FeS<sub>2</sub>). Suitable inhibitors comprise alkyl amines, aryl amines, imines; oxygen-contg. compds. such as alcs., **aldehydes**, esters, acids and ketones; mixed nitrogen-contg. and oxygen-contg. compds. such as alkanolamines, non-polymeric amides, hydroxylamines, **Mannich** products, polyisobutylenesuccinimides, oximes; sulfur-contg. compds. and phosphorus-contg. compds. The compns. and method serve to inhibit the exothermic oxidn. of pyrophoric iron sulfides upon exposure of the compds. to air.
- IT 50-00-0D, **Formaldehyde**, **Mannich** reaction  
 products with p-nonylphenol and 1,2-ethanediamine 109-89-7  
 , Diethylamine, uses  
 (inhibitor; org. compds. for inhibition of pyrophoric iron sulfide ignition, esp. in petroleum refining, transportation, and storage)
- RN 50-00-0 HCPLUS  
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



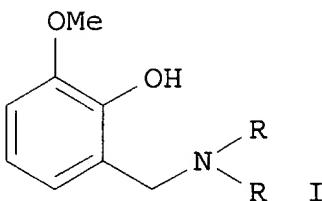
RN 109-89-7 HCAPLUS  
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



IC ICM C01B017-16  
 NCL 423265000  
 CC 51-11 (Fossil Fuels, Derivatives, and Related Products)  
 Section cross-reference(s): 59  
 IT Alcohols, uses  
**Aldehydes**, uses  
 Amides, uses  
 Amines, uses  
 Carboxylic acids, uses  
 Esters, uses  
 Imines  
 Ketones, uses  
**Mannich bases**  
 (inhibitors; org. compds. for inhibition of pyrophoric iron sulfide ignition, esp. in petroleum refining, transportation, and storage)  
 IT 50-00-0D, **Formaldehyde**, Mannich reaction  
 products with p-nonylphenol and 1,2-ethanediamine 62-53-3,  
 Aniline, uses 64-17-5, Ethanol, uses 67-64-1, Acetone, uses  
 68-12-2, Dimethylformamide, uses 75-05-8, Acetonitrile, uses  
 75-07-0, **Acetaldehyde**, uses 75-50-3, Trimethylamine,  
 uses 78-81-9, Isobutylamine 79-09-4, Propanoic acid, uses  
 91-22-5, Quinoline, uses 98-95-3, Nitrobenzene, uses 102-85-2,  
 Tributyl phosphite 104-40-5D, p-Nonylphenol, **Mannich**  
 reaction products with **formaldehyde** and ethylenediamine  
 107-10-8, n-Propylamine, uses 107-15-3D, 1,2-Ethanediame,  
**Mannich** reaction products with p-nonylphenol and  
**formaldehyde** 107-21-1, Ethylene glycol, uses  
 109-89-7, Diethylamine, uses 109-99-9, Tetrahydrofuran,  
 uses 110-18-9 110-71-4, Monoglyme 110-82-7, Cyclohexane, uses  
 112-24-3, Triethylenetetramine 112-27-6, Triethylene glycol  
 122-52-1, Triethyl phosphite 123-54-6, 2,4-Pentanedione, uses  
 123-56-8D, Succinimide, polyisobutetyl derivs. 123-86-4, Butyl  
 acetate 124-13-0, Octanal 126-33-0, Sulfolane 127-06-0,  
 Acetone oxime 141-97-9, Ethyl acetoacetate 504-75-6D,  
 1H-Imidazole, 4,5-dihydro-, 2-long-chain alkyl derivs. 540-63-6,  
 1,2-Ethanedithiol 3710-84-7, N,N-Diethylhydroxylamine  
 25899-50-7, cis-2-Pentenenitrile 27213-78-1, tert-  
**Butylcatechol** 41383-85-1, 1,2-Benzenedithiol, 3-methyl-  
 121172-43-8, 1,4-Benzenediamine, N,N,N',N'-tetrakis(1-methylpropyl)-  
 (inhibitor; org. compds. for inhibition of pyrophoric iron sulfide ignition, esp. in petroleum refining, transportation, and storage)

2000:845394 Document No. 134:147358 Controlled synthesis of novel dibenzene-1,2-diol Mannich bases. Caulfield, Marcus J.; Russo, Tiziana; Solomon, David H. (Polymer Science Group, Department of Chemical Engineering, The University of Melbourne, Vic., 3010, Australia). Australian Journal of Chemistry, 53(7), 545-549 (English) 2000. CODEN: AJCHAS. ISSN: 0004-9425. OTHER SOURCES: CASREACT 134:147358. Publisher: CSIRO Publishing.

GI



- AB The synthesis of novel dibenzene-1,2-diol Mannich bases, e.g. I (R = Me, Et), was achieved in good yields by the condensation of 2-methoxyphenol, formaldehyde and secondary diamines. The newly developed synthetic method utilizes 2-methoxyphenol instead of benzene-1,2-diol providing a useful tool for greater control over reaction products.
- IT 109-89-7, Diethylamine, reactions 111-92-2,  
Dibutylamine 124-40-3, Dimethylamine, reactions  
142-84-7, Dipropylamine  
(prep. of dibenzenediol Mannich bases by  
condensation of methoxyphenol with formaldehyde and  
secondary diamines)
- RN 109-89-7 HCPLUS
- CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



- RN 111-92-2 HCPLUS
- CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



- RN 124-40-3 HCPLUS
- CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



RN 142-84-7 HCAPLUS  
 CN 1-Propanamine, N-propyl- (9CI) (CA INDEX NAME)

n-Pr-NH-Pr-n

CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
 ST dibenzenediol mannich base prepn; methoxyphenol  
     formaldehyde amine condensation  
 IT Condensation reaction  
     (prepn. of dibenzenediol mannich bases by  
       condensation of methoxyphenol with formaldehyde and  
       secondary diamines)  
 IT Aldehydes, reactions  
 Hydroquinones  
     (prepn. of dibenzenediol mannich bases by  
       condensation of methoxyphenol with formaldehyde and  
       secondary diamines)  
 IT Amines, preparation  
     (prepn. of dibenzenediol mannich bases by  
       condensation of methoxyphenol with formaldehyde and  
       secondary diamines)  
 IT 90-05-1, 2-Methoxyphenol 109-89-7, Diethylamine, reactions  
 110-70-3 110-85-0, Piperazine, reactions 111-33-1 111-74-0  
 111-92-2, Dibutylamine 120-80-9, 1,2-Benzenediol  
     , reactions 124-40-3, Dimethylamine, reactions  
 142-84-7, Dipropylamine  
     (prepn. of dibenzenediol mannich bases by  
       condensation of methoxyphenol with formaldehyde and  
       secondary diamines)  
 IT 24773-90-8P 40792-28-7P 43060-63-5P 124672-67-9P  
 322648-91-9P 322648-92-0P 322648-93-1P 322649-01-4P  
     (prepn. of dibenzenediol mannich bases by  
       condensation of methoxyphenol with formaldehyde and  
       secondary diamines)  
 IT 94483-71-3P 322648-94-2P 322648-95-3P 322648-96-4P  
 322648-97-5P 322648-98-6P 322648-99-7P 322649-00-3P  
     (prepn. of dibenzenediol mannich bases by  
       condensation of methoxyphenol with formaldehyde and  
       secondary diamines)

L61 ANSWER 4 OF 26 HCAPLUS COPYRIGHT 2002 ACS  
 1995:318175 Document No. 122:213688 A new entry to the synthesis of  
 1,2-benzenediol congeners. Ozaki, Yutaka; Oshio, Ikumi;  
 Ohsuga, Yasue; Kaburagi, Shouichi; Sung, Zhung-Zhu; Kim, Sang-Won  
 (Fac. Pharm. Sci., Josai Univ., Saitama, 350-02, Japan). Chemical &  
 Pharmaceutical Bulletin, 39(5), 1132-6 (English) 1991. CODEN:  
 CPBTAL. ISSN: 0009-2363. OTHER SOURCES: CASREACT 122:213688.  
 Publisher: Pharmaceutical Society of Japan.  
 AB 1,2-Benzenediols were synthesized via 1,1-bis(ethylthio)3-  
 cyclohexen-2-one derivs., which were prep'd. by condensation of

1,1-bis(ethylthio)-2-propanone with **Mannich bases**.  
 Regioselective prepn. of their monoethers was also achieved.

IT 506-59-2, Dimethylamine hydrochloride  
 (prep. of 1,2-**benzenediol** congeners)  
 RN 506-59-2 HCPLUS  
 CN Methanamine, N-methyl-, hydrochloride (9CI) (CA INDEX NAME)



HCl

CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
 ST annelation **benzenediol** congener prep; annulation  
**benzenediol** congener prep; condensation **benzenediol**  
 congener prep; **Mannich base benzenediol**  
 congener prep  
 IT Cyclocondensation reaction  
 ([3C + 3C]; prep. of 1,2-**benzenediol** congeners)  
 IT Condensation reaction  
 Regiochemistry  
 (prep. of 1,2-**benzenediol** congeners)  
 IT **Mannich bases**  
 (prep. of 1,2-**benzenediol** congeners)  
 IT Phenols, preparation  
 (prep. of 1,2-**benzenediol** congeners)  
 IT Ethers, preparation  
 (phenolic, prep. of 1,2-**benzenediol** congeners)  
 IT Ketones, preparation  
 (unsatd., prep. of 1,2-**benzenediol** congeners)  
 IT 506-59-2, Dimethylamine hydrochloride 3506-36-3  
 6947-99-5 7353-59-5 7616-83-3, Mercuric perchlorate 15409-60-6  
 15409-61-7 22877-01-6 30525-89-4, Paraformaldehyde  
 98429-19-7  
 (prep. of 1,2-**benzenediol** congeners)  
 IT 125101-60-2P 125101-61-3P 125101-62-4P 125101-63-5P  
 125101-64-6P 125101-66-8P 125101-67-9P 125101-68-0P  
 125101-69-1P 125101-70-4P 125101-71-5P 125101-72-6P  
 125101-73-7P 125101-74-8P 125101-75-9P 125101-76-0P  
 125101-79-3P 125101-80-6P 125101-83-9P 125101-84-0P  
 125101-85-1P 161835-31-0P 161835-39-8P  
 (prep. of 1,2-**benzenediol** congeners)  
 IT 92-05-7P, [1,1'-Biphenyl]-3,4-diol 942-65-4P 945-60-8P  
 961-77-3P 3355-05-3P 3579-88-2P 3598-20-7P 37055-79-1P  
 37055-80-4P 77065-84-0P 83802-75-9P 93877-90-8P  
 102036-30-6P, [1,1'-Biphenyl]-2,3',4,4'-tetrol 125101-65-7P  
 125101-77-1P 125101-78-2P 125101-81-7P 125101-82-8P  
 125130-40-7P 161835-32-1P 161835-33-2P 161835-34-3P

161835-35-4P 161835-36-5P 161835-37-6P 161835-38-7P

161835-40-1P 161835-41-2P

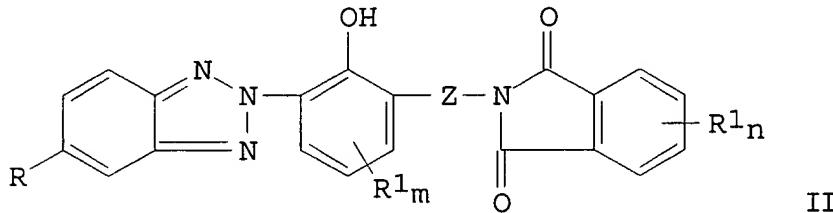
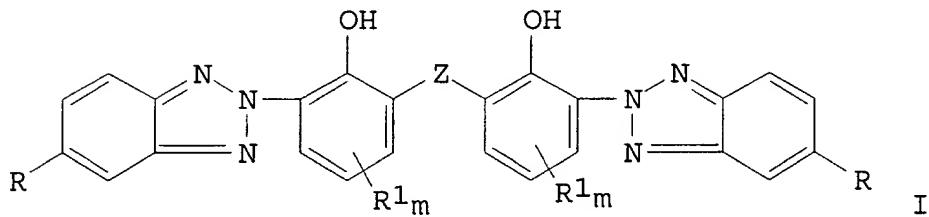
(prepn. of 1,2-benzenediol congeners)

L61 ANSWER 5 OF 26 HCPLUS COPYRIGHT 2002 ACS

1994:422553 Document No. 121:22553 Positive-working photoresist compositions providing pattern with good dimensional stability.

Kawabe, Yasumasa; Uenishi, Kazuya; Kokubo, Tadayoshi (Fuji Photo Film Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 05341509 A2 19931224 Heisei, 13 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1992-144395 19920604.

GI



- AB The title compns. comprise an alkali-sol. resin, a 1,2-naphthoquinonediazide compd., and 0.1-10 wt.% of the total solids of .gtoreq.1 light-absorbing agent selected from I and II (R = H, halo, alkyl, aralkyl, alkoxy, acyl, aryl; Z = bond, alkylene, O, S, SO<sub>2</sub>, CO; R1 = H, alkyl, aralkyl; m = 1-3; n = 1-4). The compns. provide resist patterns with good dimensional stability.
- IT 109-89-7, Diethylamine, reactions  
(Mannich reaction of, with methylbenzotriazolylphenol)
- RN 109-89-7 HCPLUS
- CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)

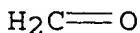


IC ICM G03F007-022

ICS H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and

- Other Reprographic Processes)  
 Section cross-reference(s) : 76  
 IT 2440-22-4 3147-75-9 15989-00-1  
     (Mannich reaction of, with diethylamine)  
 IT 109-89-7, Diethylamine, reactions  
     (Mannich reaction of, with methylbenzotriazolylphenol)  
 IT 87-66-1DP, 1,2,3-Trihydroxybenzene, reaction products with  
     naphthoquinonediazidesulonic chloride 97-29-0DP, reaction products  
     with naphthoquinonediazidesulonic chloride 108-73-6DP,  
     Phloroglucinol, reaction products with naphthoquinonediazidesulonic  
     chloride 121-79-9DP, Propyl 3,4,5-trihydroxybenzoate, reaction  
     products with naphthoquinonediazidesulonic chloride 25053-98-9P,  
     m-Cresol-3,5-dimethylphenol-formalin copolymer  
     27029-76-1P, m-Cresol-p-cresol-formalin  
     copolymer 31127-54-5DP, 2,3,4,4'-Tetrahydroxybenzophenone,  
     reaction products with naphthoquinonediazidesulonic chloride  
     38638-43-6DP, 1,2-Naphthoquinonediazide-5-sulfonyl chloride,  
     reaction products with polyhydric phenols  
     (prepn. of, photoresist contg.)  
 IT 106-44-5, p-Cresol, reactions  
     (reaction of, with caprylaldehyde)  
 IT 124-13-0, Caprylaldehyde  
     (reaction of, with cresol)  
  
 L61 ANSWER 6 OF 26 HCAPLUS COPYRIGHT 2002 ACS  
 1994:111447 Document No. 120:111447 Gasoline composition. Graiff,  
 Leonard B. (Shell Canada Ltd., Can.). Can. Pat. Appl. CA 2089833 AA  
 19930821, 13 pp. (English). CODEN: CPXXEB. APPLICATION: CA  
 1993-2089833 19930218. PRIORITY: US 1992-838180 19920220.  
 AB A gasoline compn. comprises a major amt. of gasoline and a minor  
 amt. of a mixt. of (a) 75-450 ppm by wt. of a condensation product  
 of a high mol. wt. sulfur-free alkyl-substituted hydroxyarom  
 . compd. where the alkyl group has a no. av. mol. wt. of 600-3000,  
 an amine with .gtoreq.1 active H atom, and aldehyde; and  
 (b) 75-175 ppm by wt. of an oil sol. poly(oxyalkylene) alc., glycol  
 or polyol or mono or di ether. The wt. ratio of a to b is >0.43.  
 The gasoline additive compn. prevents engine deposits.  
 IT 50-00-0D, Formaldehyde, alkyl-substituted  
 hydroxyarom. and amine Mannich reaction products  
 with 124-40-3D, Dimethylamine, alkyl-substituted  
 hydroxyarom. and aldehyde Mannich  
 reaction products with  
     (deposit inhibitor gasoline additives contg. polyoxyalkylenes  
     and)  
 RN 50-00-0 HCAPLUS  
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)

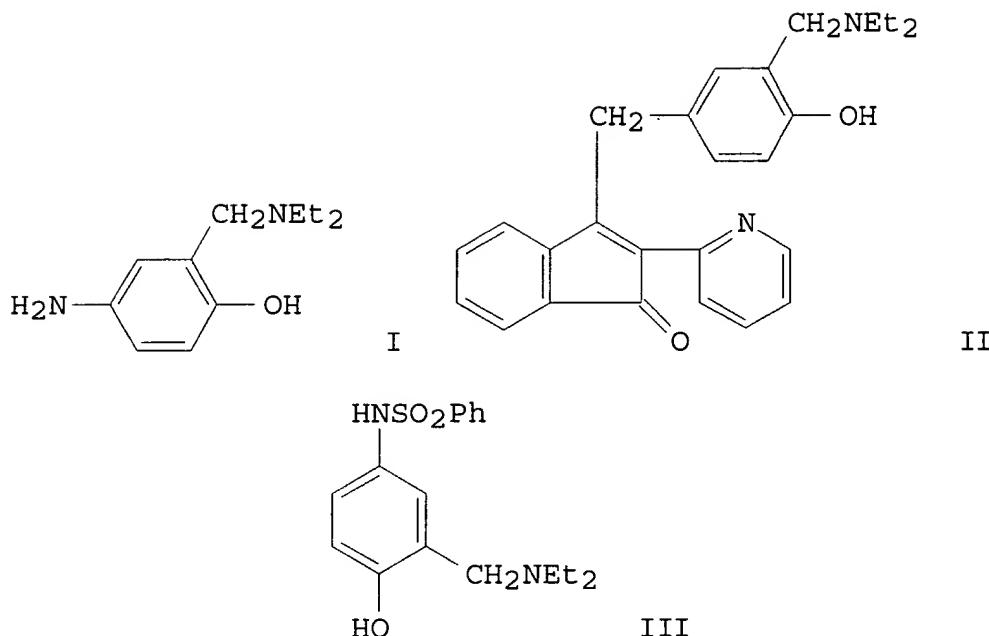


IC ICM C10L001-18  
 ICS C10L001-22  
 CC 51-7 (Fossil Fuels, Derivatives, and Related Products)  
 IT Polyoxyalkylenes, uses  
     (deposit inhibitor gasoline additives contg. Mannich reaction products and)  
 IT Alcohols, compounds  
     (C12-15, propoxylated, deposit inhibitor gasoline additives contg. Mannich reaction products and)  
 IT Gasoline additives  
     (deposit inhibitors, Mannich reaction products and polyoxyalkylenes)  
 IT Polyoxyalkylenes, compounds  
     (ethers, deposit inhibitor gasoline additives contg. Mannich reaction products and)  
 IT Alcohols, compounds  
     (ethoxylated, deposit inhibitor gasoline additives contg. Mannich reaction products and)  
 IT 50-00-0D, Formaldehyde, alkyl-substituted hydroxyarom. and amine Mannich reaction products with 109-55-7D, Dimethylaminopropylamine, alkyl-substituted hydroxyarom. and aldehyde Mannich reaction products with 109-55-7D, N,N-Dimethyl-1,3-diaminopropane, polyisobutetyl derivs. 111-40-0D, Diethylenetriamine, alkyl-substituted hydroxyarom. and aldehyde Mannich reaction products with 112-24-3D, alkyl-substituted hydroxyarom. and aldehyde Mannich reaction products with 112-57-2D, Tetraethylenepentamine, alkyl-substituted hydroxyarom. and aldehyde Mannich reaction products with 124-40-3D, Dimethylamine, alkyl-substituted hydroxyarom. and aldehyde Mannich reaction products with 30525-89-4D, Paraformaldehyde, alkyl-substituted hydroxyarom. and amine Mannich reaction products with  
     (deposit inhibitor gasoline additives contg. polyoxyalkylenes and)

L61 ANSWER 7 OF 26 HCAPLUS COPYRIGHT 2002 ACS

1993:80770 Document No. 118:80770 Synthesis and mass spectrometry of some a-dialkylaminoalkylphenols structurally related to certain antiparasitic agents. El-Mouafi, Hamdi M. R. (Fac. Pharm., Cairo Univ., Egypt). Egyptian Journal of Pharmaceutical Sciences, 32(3-4), 927-35 (English) 1991. CODEN: EJPSBZ. ISSN: 0301-5068.

OTHER SOURCES: CASREACT 118:80770.



AB Condensation of **aminohydroxybenzenemethanamine** derivs. (Mannich bases), e.g. I with 3-chloro-2-(2-pyridyl)-1-indenone gave the [[[ (dialkylamino)methyl]hydroxyphenyl]amino](2-pyridyl)indenone II. Mannich reaction of N-(4-hydroxyphenyl)benzenesulfonamide with **formaldehyde** and diethylamine gave the [[[ (dialkylamino)methyl]hydroxyphenyl]benzenesulfonamide III. The mass spectrum of III was discussed. The antiparasitic activity of these compds. was not reported.

IT 109-89-7, Diethylamine, reactions 111-92-2,  
Dibutylamine

(Mannich reaction of, with N-(hydroxyphenyl)benzenesulfonamide)

RN 109-89-7 HCPLUS

CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



RN 111-92-2 HCPLUS

CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



CC 27-16 (Heterocyclic Compounds (One Hetero Atom))  
 Section cross-reference(s): 1, 25, 28

ST alkylaminomethylhydroxyphenyl benzenesulfonamide; pyridyl  
 alkylaminomethylhydroxyphenylamino indenone; mass spectrum  
 alkylaminomethylhydroxyphenyl benzenesulfonamide;  
 alkylaminoalkylphenols parasiticide mass spectrum; condensation  
**Mannich** base chloropyridyl indenone

IT 103-49-1, Dibenzylamine 109-89-7, Diethylamine, reactions  
 110-91-8, Morpholine, reactions 111-92-2, Dibutylamine  
 (**Mannich** reaction of, with N-  
 (hydroxyphenyl)benzenesulfonamide)

IT 105481-66-1 145438-28-4  
 (condensation reaction of, with **aminohydroxybenzenemethanamine** deriv. (**Mannich** base))

IT 1146-43-6P, N-(4-Hydroxyphenyl)-4-methylbenzenesulfonamide  
 5471-90-9P, N-(4-Hydroxyphenyl)benzenesulfonamide  
 (prepn. and **Mannich** reaction of)

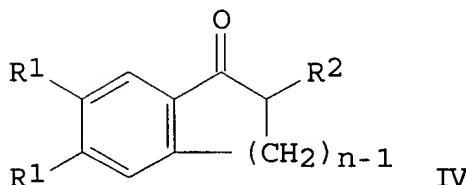
IT 145438-34-2P 145438-35-3P 145438-36-4P  
 (prepn. of, by **Mannich** reaction of N-  
 (hydroxyphenyl)benzenesulfonamide with secondary amine)

IT 145438-37-5P 145438-38-6P 145438-39-7P 145438-40-0P  
 (prepn. of, by **Mannich** reaction of N-  
 (hydroxyphenyl)methylbenzenesulfonamide with secondary amine)

IT 145438-29-5P 145438-30-8P 145438-31-9P 145438-32-0P  
 145438-33-1P  
 (prepn. of, by condensation reaction of  
**aminohydroxybenzenemethanamine** deriv. (**Mannich**  
 base) with aryl(chloro)indenone)

L61 ANSWER 8 OF 26 HCPLUS COPYRIGHT 2002 ACS  
 1991:655697 Document No. 115:255697 Synthesis and antiinflammatory  
 activity of 1,2-[2-[(dimethylamino)methyl]-1-  
 oxopolymethylene]benzenes and their 4,5-diethoxy derivatives.  
 Daucksas, V.; Gaidelis, P.; Labanauskas, L.; Gumbaragite, L.;  
 Gasperaviciene, G. (Vil'nyuss. Gos. Univ., Vilnius, USSR).  
 Khimiko-Farmatsevticheskii Zhurnal, 25(8), 32-4 (Russian) 1991.  
 CODEN: KHFZAN. ISSN: 0023-1134. OTHER SOURCES: CASREACT  
 115:255697.

GI



AB Acylating 3,4- (EtO)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>R (I; R = H) with succinic anhydride in

$\text{CH}_2\text{Cl}_2$  contg.  $\text{AlCl}_3$  gave 63% I ( $\text{R} = \text{COCH}_2\text{CH}_2\text{CO}_2\text{H}$ ), which was reduced with Zn amalgam in concd. HCl to give 89% I [ $\text{R} = (\text{CH}_2)_3\text{CO}_2\text{H}$ ] (II). I ( $\text{R} = \text{CHO}$ ) condensed with malonic acid in 80:20 pyridine-piperidine at 110.degree. to give 88% I ( $\text{R} = \text{CH}:\text{CHCO}_2\text{H}$ ), which was reduced with 90 atm  $\text{H}_2$  over Raney Ni to give 95% I [ $\text{R} = (\text{CH}_2)_2\text{CO}_2\text{H}$ ] (III). Dehydrating II and III with  $\text{P}_2\text{O}_5$  in 85%  $\text{H}_3\text{PO}_4$  at 90.degree. gave 70-77% bicyclic ketones IV ( $\text{R}_1 = \text{EtO}; \text{R}_2 = \text{H}; n = 2, 3$ ), which reacted with  $\text{Me}_2\text{NH.HCl}$  and paraform in refluxing EtOH to give 65-70% IV (same  $\text{R}_1, n; \text{R}_2 = \text{CH}_2\text{NMe}_2.\text{HCl}$ ). Analogous Mannich reaction of IV ( $\text{R}_1 = \text{R}_2 = \text{H}; n = 4, 5$ ) gave 53-67% IV (same  $\text{R}_1, n; \text{R}_2 = \text{CH}_2\text{NMe}_2.\text{HCl}$ ). IV ( $n = 2-5; \text{R}_2 = \text{CH}_2\text{NMe}_2.\text{HCl}$ ) had significant antiinflammatory activity.

- IT 506-59-2, Dimethylamine hydrochloride  
     (Mannich reaction of (oxopolymethylene)benzenes with paraform and)
- RN 506-59-2 HCPLUS
- CN Methanamine, N-methyl-, hydrochloride (9CI) (CA INDEX NAME)

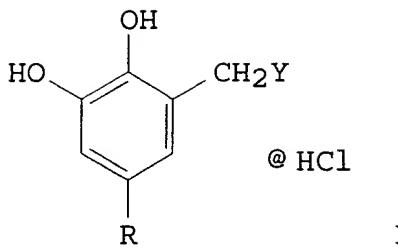


HCl

- CC 25-4 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
     Section cross-reference(s): 1
- IT 506-59-2, Dimethylamine hydrochloride  
     (Mannich reaction of (oxopolymethylene)benzenes with paraform and)
- IT 826-73-3 829-14-1  
     (Mannich reaction of, with paraform and dimethylamine)
- IT 108-30-5, Succinic anhydride, reactions  
     (acylation by, of pyrocatechol di-Et ether)
- IT 141-82-2, Malonic acid, reactions  
     (condensation reaction of, with diethoxybenzaldehyde)
- IT 119034-81-0P 137013-02-6P  
     (prepn. and Mannich reaction of, with paraform and dimethylamine)

L61 ANSWER 9 OF 26 HCPLUS COPYRIGHT 2002 ACS  
 1991:582728 Document No. 115:182728 Synthesis of several catechol-methylamine derivatives. Jia, Guiquan; Xue, Fen; Ye, Ying; Shao, Yide (Dep. Org. Chem., Shanghai Med. Univ., Shanghai, Peop. Rep. China). Shanghai Yike Daxue Xuebao, 18(1), 67-71 (Chinese) 1991. CODEN: SYDXEE. ISSN: 0257-8131.

GI



AB The title compds. (I; R = H, Ac; Y = dialkylamino, dicyclohexylamino, heterocyclyl), useful as blood platelet aggregation inhibitors (no data), are prep'd. by Mannich reaction. Catechol was added to a stirred soln. of paraformaldehyde and Et<sub>2</sub>NH in EtOH, the mixt. was stirred, concd. in vacuo, H<sub>2</sub>O and HCl were added to the residue, extd. with Et<sub>2</sub>O, and treated with HCl (g) to give 25% I (R = H, Y = Et<sub>2</sub>N). Similarly prep'd. were 10 addnl. I.

IT 109-89-7, reactions  
(Mannich reaction of, with paraformaldehyde and catechol)

RN 109-89-7 HCAPLUS

CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
Section cross-reference(s): 1

ST catecholmethylamine prep'n platelet aggregation inhibitor

IT Blood platelet aggregation inhibitors  
(catechol methylamine derivs.)

IT 30525-89-4, Paraformaldehyde  
(Mannich reaction of, with catechol and amines)

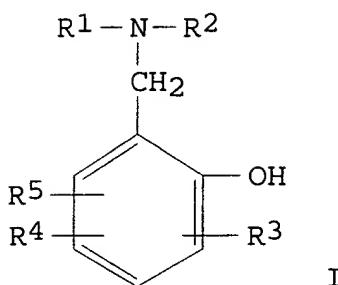
IT 109-89-7, reactions  
(Mannich reaction of, with paraformaldehyde and catechol)

IT 120-80-9, Catechol, reactions 1197-09-7  
(Mannich reaction of, with paraformaldehyde and diethylamine)

L61 ANSWER 10 OF 26 HCAPLUS COPYRIGHT 2002 ACS

1990:611559 Document No. 113:211559 A process for the synthesis of ortho-methylated hydroxyaromatic compounds. Pan, Yuh Guo; Hochman, Lana L. (Bristol-Myers Squibb Co., USA). Eur. Pat. Appl. EP 373668 A2 19900620, 9 pp. DESIGNATED STATES: R: BE, CH, DE, ES, FR, GB, IT, LI, NL, SE. (English). CODEN: EPXXDW. APPLICATION: EP 1989-123230 19891215. PRIORITY: US 1988-285906 19881216.

GI



- AB The title compds. [I; R1-R5 = H, alkyl(aryl), alkoxy(aryl), halo(alkyl), amino(alkyl), nitro(alkyl), (halo)aryl, acetamido; R4R5 may form a 5- or 6-membered carbocyclic or heterocyclic ring] were prep'd. by hydrogenation of a **Mannich** base at 30 to .apprx.60 psi H pressure, in the presence of an aq. neutral or alk. solvent. Thus, 3-H2NC6H4OH was N-acetylated and the amide (92%) underwent a **Mannich** reaction with Me2NH and CH2O in MeOH to give 67% 5-acetamido-2-[(dimethylamino)methyl]phenol. The latter was dissolved in 3N KOH, Pd/C was added, and mixt. was shaken 3 h at 70-80.degree. under 60 psi of H to give 68% of the title compd. 2,5-Me(H2N)C6H3OH.
- IT 124-40-3, reactions  
 (Mannich reaction of, with acetamidophenol, in prepn.  
 of cresol deriv.)
- RN 124-40-3 HCPLUS
- CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



- IC ICM C07C213-08  
 ICS C07C037-00; C07D317-64; C07C215-76; C07C215-86; C07C039-14;  
 C07C233-43
- CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
- ST cresol prep'n hydrogenation **Mannich** base;  
**Mannich** reaction acetamidophenol;  
 acetamidodimethylaminomethylphenol hydrogenation
- IT Hydrogenation  
 (of hydroxylated **Mannich** bases, cresols from)
- IT **Mannich** bases  
 (phenolic, hydrogenation of, cresols from)
- IT 124-40-3, reactions  
 (Mannich reaction of, with acetamidophenol, in prepn.  
 of cresol deriv.)

- IT 591-27-5, m-Aminophenol  
     (N-acetylation of, in prepn. of **cresol** deriv.)
- IT 2977-73-3  
     (hydrogenation of, in prepn. of **cresol** deriv.)
- IT 1333-74-0  
     (hydrogenation, of hydroxylated **Mannich** bases,  
     **cresols** from)
- IT 621-42-1P, 3-Acetamidophenol  
     (prepn. and **Mannich** reaction of, in prepn. of  
     **cresol** deriv.)
- IT 13886-04-9P  
     (prepn. and hydrogenation of, in prepn. of **cresol**  
     deriv.)
- IT 2835-95-2P, 5-Amino-o-**cresol** 130264-16-3P  
     (prepn. of, by hydrogenation of **Mannich** base precursor)

L61 ANSWER 11 OF 26 HCPLUS COPYRIGHT 2002 ACS

1989:514796 Document No. 111:114796 Synthesis and reactions of  
 1-allyl-4-propargylhydroxybenzene. Mamedov, G. Kh.;  
 Said-Omar, A. G.; Khodzhaev, G. Kh. (Azerb. Inst. Nefti Khim. im.  
 Azizbekova, Baku, USSR). Doklady - Akademiya Nauk Azerbaijanskoi  
 SSR, 44(8), 35-8 (Russian) 1988. CODEN: DAZRA7. ISSN: 0002-3078.

AB p-CH<sub>2</sub>:CHCH<sub>2</sub>OC<sub>6</sub>H<sub>4</sub>OR (I; R = H) reacted with HC.tplbond.CCH<sub>2</sub>Br in  
 Me<sub>2</sub>CO contg. KOH at 50-60.degree. to give 55% I (R =  
 CH<sub>2</sub>C.tplbond.CH) (II), which reacted with HCHO and R<sub>12</sub>NH  
 (R<sub>1</sub> = Et, Bu) in dry dioxane contg. CuCl gave 57-61% I (R =  
 CH<sub>2</sub>C.tplbond.CCH<sub>2</sub>NR<sub>12</sub>; same R<sub>1</sub>). Treating II with EtMgBr and then  
 MeCHO in Et<sub>2</sub>O gave 43% I (R = CH<sub>2</sub>C.tplbond.CCHMeOH), which reacted  
 with R<sub>1</sub>OCH<sub>2</sub>Cl (same R<sub>1</sub>) to give 42-49% I (R =  
 CH<sub>2</sub>C.tplbond.CCHMeOCH<sub>2</sub>OR<sub>1</sub>). Hydrating II in aq. HgO-H<sub>2</sub>SO<sub>4</sub> gave 60%  
 I (R = CH<sub>2</sub>COMe).

IT 109-89-7, Diethylamine, reactions 111-92-2,  
 Dibutylamine  
     (aminomethylation with **paraformaldehyde** and, of  
     allyl(propargyloxy)benzene)

RN 109-89-7 HCPLUS  
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



RN 111-92-2 HCPLUS  
 CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)

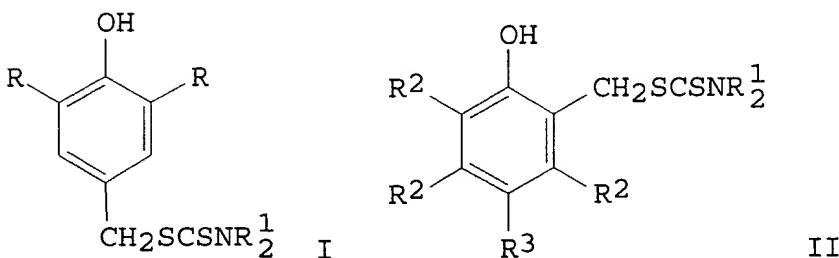


CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
 ST allylphenol propargylation; allylpropargyloxybenzene prepn Grignard  
**Mannich** Kucherov; Kucherov hydration

- IT allylpropargyloxybenzene  
 75-07-0, Acetaldehyde, reactions  
 (Grignard reaction of, with allyl(propargyloxybenzene))
- IT 109-89-7, Diethylamine, reactions 111-92-2,  
 Dibutylamine  
 (aminomethylation with paraformaldehyde and, of  
 allyl(propargyloxy)benzene)

L61 ANSWER 12 OF 26 HCAPLUS COPYRIGHT 2002 ACS  
 1987:575623 Document No. 107:175623 Alkylhydroxybenzyl  
 dialkyldithiocarbamates-antioxidizing agents for hydrocarbons.  
 Pereslegina, N. S.; Kuz'mina, G. N.; Markova, E. I.; Sanin, P. I.  
 (Inst. Neftekhim. Sint. im. Topchieva, Moscow, USSR). Neftekhimiya,  
 26(4), 563-70 (Russian) 1986. CODEN: NEFTAH. ISSN: 0028-2421.  
 OTHER SOURCES: CASREACT 107:175623.

GI



- AB Seven title compds. (I; R = Me, Me<sub>3</sub>C; R<sub>1</sub> = Et, Bu, n-pentyl; and II; R<sub>1</sub> = Et; n-pentyl; R<sub>2</sub>, R<sub>3</sub> = H, Me) were prep'd. in 45-89% yields from the corresponding alkylphenols by aminomethylation with R<sub>21</sub>NH (same R<sub>1</sub>) and CH<sub>2</sub>O in HCl-H<sub>2</sub>O-EtOH, followed by thiocarbamoylation with CS<sub>2</sub>. Antioxidant activity during hydrocarbon oxidn. was highest for I (R = Me; same R<sub>1</sub>).  
 IT 109-89-7, Diethylamine, reactions 111-92-2  
 2050-92-2, Di-n-pentylamine  
 (Mannich reaction of alkylphenols with)  
 RN 109-89-7 HCAPLUS  
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



- RN 111-92-2 HCAPLUS  
 CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)

n-Bu-NH-Bu-n

RN 2050-92-2 HCPLUS  
 CN 1-Pentanamine, N-pentyl- (9CI) (CA INDEX NAME)

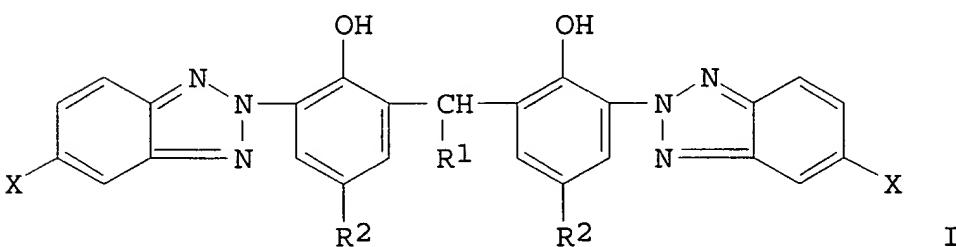
Me-(CH<sub>2</sub>)<sub>4</sub>-NH-(CH<sub>2</sub>)<sub>4</sub>-Me

CC 25-21 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
 ST phenol alkyl aminomethylation alkylamine **formaldehyde**;  
**Mannich** base thiocarbamoylation carbon disulfide;  
 methylhydroxybenzyl alkyldithiocarbamate prepn antioxidant;  
 butylhydroxybenzyl alkyldithiocarbamate; dithiocarbamate alkyl  
 alkylhydroxybenzyl  
 IT 109-89-7, Diethylamine, reactions 111-92-2  
 2050-92-2, Di-n-pentylamine  
 (**Mannich** reaction of alkylphenols with)  
 IT 106-44-5, p-Cresol, reactions 128-39-2,  
 2,6-Di-tert-butylphenol 576-26-1, 2,6-Dimethylphenol 697-82-5,  
 2,3,5-Trimethylphenol  
 (aminomethylation of, **Mannich** base by)  
 IT 97-77-8P 1516-94-5P 1634-02-2P 5721-31-3P 6476-26-2P  
 (formation of, in thiocarbamoylation of **Mannich** bases)

L61 ANSWER 13 OF 26 HCPLUS COPYRIGHT 2002 ACS

1986:516685 Document No. 105:116685 Thermosetting synthetic resin  
 lacquer compositions having improved light stability. Kubota,  
 Naohiro; Shibata, Toshihiro; Nishimura, Atsushi (Adeka Argus  
 Chemical Co., Ltd., Japan). Eur. Pat. Appl. EP 180991 A2 19860514,  
 21 pp. DESIGNATED STATES: R: BE, CH, DE, FR, GB, LI, NL.  
 (English). CODEN: EPXXDW. APPLICATION: EP 1985-114201 19851107.  
 PRIORITY: JP 1984-234372 19841107.

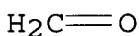
GI



AB The triazoles I [R1 = H, C1-12 alkyl; R2 = C1-12 alkyl, C7-16  
 arylalkyl; X = H, halogen, C1-12 alkyl(oxy), C6-10 aryl(oxy) C7-16  
 arylalkyl(oxy)] are stabilizers for automotive finishes. Thus,

refluxing 2-benzotriazolyl-p-cresol 225, diethylamine 1.10, and **paraformaldehyde** 51.8 g in BuOH at 95-105.degree. for 24 h gave a **Mannich** base, of which 7.8 g in xylene was refluxed treated with NaOMe to give 2,2'-methylenebis(benzotriazolyl-p-cresol) (II). A mixt. of alkyd 70, melamine resin 30, and II 0.6 part was coated on steel and air dried to give coatings that failed after 2400 h accelerated weathering, vs. 900 without II.

IT 50-00-0, reactions  
 (reaction of, with diethylamine and benzotriazolylphenols)  
 RN 50-00-0 HCPLUS  
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



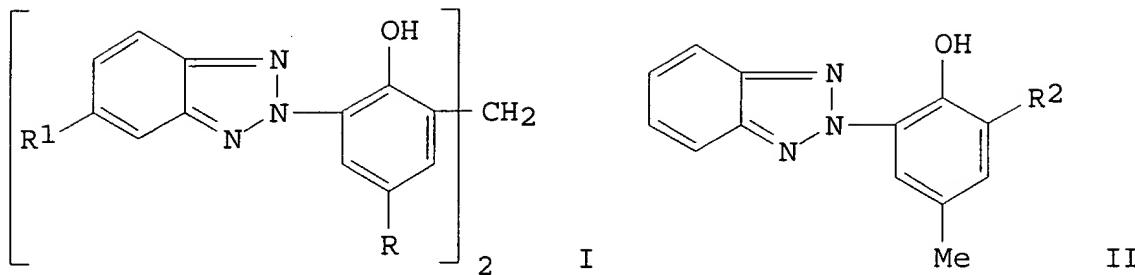
IT 109-89-7, reactions  
 (reaction of, with **formaldehyde** and benzotriazolylphenols)  
 RN 109-89-7 HCPLUS  
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



IC ICM C08K005-34  
 ICS C09D003-48; C09D007-12  
 CC 42-5 (Coatings, Inks, and Related Products)  
 Section cross-reference(s): 28  
 IT 3147-75-9 15989-00-1  
 (reaction of, with benzotriazole derivs. diethylamine and **formaldehyde**)  
 IT 50-00-0, reactions  
 (reaction of, with diethylamine and benzotriazolylphenols)  
 IT 2440-22-4  
 (reaction of, with diethylamine and **formaldehyde**)  
 IT 109-89-7, reactions  
 (reaction of, with **formaldehyde** and benzotriazolylphenols)

L61 ANSWER 14 OF 26 HCPLUS COPYRIGHT 2002 ACS  
 1986:478941 Document No. 105:78941 2,2'-Methylenebis(4-hydrocarbyl-6-benzotriazolylphenols). Kubota, Naohiro; Nishimura, Atsushi (Adeka Argus Chemical Co., Ltd., Japan). Eur. Pat. Appl. EP 180993 A2 19860514, 16 pp. DESIGNATED STATES: R: BE, CH, DE, FR, GB, LI, NL. (English). CODEN: EPXXDW. APPLICATION: EP 1985-114203 19851107. PRIORITY: JP 1984-236290 19841109.

GI



AB The title compds. (I; R = alkyl, aralkyl, cycloalkyl; R1 = H, halo, alkyl, aryl, arylalkyl, alkoxy, aryloxy, arylalkoxy) were prep'd. as light stabilizers for plastics (no data). Thus, benzotriazolylphenol II (R2 = H) underwent **Mannich** reaction with Et<sub>2</sub>NH and H<sub>2</sub>CO to give 99% II (R2 = CH<sub>2</sub>NET<sub>2</sub>). This was refluxed in xylene with NaOMe to give 96% I (R = Me, R1 = H) of 91% purity.

IT 50-00-0, reactions

(Mannich reaction of, with phenols and diethylamines)

RN 50-00-0 HCPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)

H<sub>2</sub>C=O

IT 109-89-7, reactions

(Mannich reaction of, with phenols and formaldehyde)

RN 109-89-7 HCPLUS

CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)

H<sub>3</sub>C—CH<sub>2</sub>—NH—CH<sub>2</sub>—CH<sub>3</sub>

IC ICM C07D249-20

CC 28-10 (Heterocyclic Compounds (More Than One Hetero Atom))

Section cross-reference(s): 37

IT 2440-22-4 3147-75-9 38080-26-1

(Mannich reaction of, with diethylamine and formaldehyde)

IT 50-00-0, reactions

(Mannich reaction of, with phenols and diethylamines)

IT 109-89-7, reactions

(Mannich reaction of, with phenols and formaldehyde)

IT 106-44-5, reactions

(condensation of, with **caprylaldehyde**)

IT 124-13-0

(condensation of, with **cresol**)

L61 ANSWER 15 OF 26 HCPLUS COPYRIGHT 2002 ACS

1985:5929 Document No. 102:5929 Ortho- or para-monoalkylated or 2,4-  
or 2,6-dialkylated phenols. Leston, Gerd (Koppers Co., Inc., USA).  
U.S. US 4480140 A 19841030, 6 pp. (English). CODEN: USXXAM.

APPLICATION: US 1983-475719 19830316.

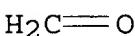
AB Halophenols (unsubstituted in one or two of the 2-, 4-, and  
6-positions) were converted to the title compds. by a  
**Mannich** reaction followed by hydrogenolysis of the  
intermediates. Thus, 4-chloro-3-methylphenol underwent a  
**Mannich** reaction with HCHO and Me2NH, and  
subsequent hydrogenolysis over Pd gave 2,5-Me2C6H3OH, 2,3-Me2C6H3OH,  
and 2,3,6-Me3C6H2OH.

IT 50-00-0, reactions

(Mannich reaction of, with chlorophenol deriv. and  
dimethylamine, and hydrogenolysis of product from)

RN 50-00-0 HCPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IT 124-40-3, reactions

(Mannich reaction of, with **formaldehyde** and  
chlorophenol deriv., and hydrogenolysis of product from)

RN 124-40-3 HCPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC C07C037-00; C07C039-06

NCL 568784000

CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

ST phenol trimethyl; xylene; **cresol Mannich**

hydrogenolysis

IT Hydrogenolysis

(of aminomethylated **chlorocresol**, di- and  
trimethylphenol from)

IT Mannich reaction

(of chlorophenol deriv. with **formaldehyde** and  
dimethylamine, and hydrogenolysis of product from)

IT 50-00-0, reactions

(Mannich reaction of, with chlorophenol deriv. and  
dimethylamine, and hydrogenolysis of product from)

IT 124-40-3, reactions

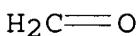
(Mannich reaction of, with **formaldehyde** and

IT      chlorophenol deriv., and hydrogenolysis of product from)  
 IT      59-50-7  
       (Mannich reaction of, with formaldehyde and  
       dimethylamine, and hydrogenolysis of product from)  
 IT      108-39-4P, preparation  
       (formation of, in hydrogenolysis of aminomethylated  
       chlorocresol)

L61 ANSWER 16 OF 26 HCPLUS COPYRIGHT 2002 ACS  
 1984:175458 Document No. 100:175458 Functionalized polyionenes bearing  
 hydroquinone or catechol structure. Suzuki, Y.; Tazuke,  
 S. (Res. Inst. Polym. Text., Yatabe, 305, Japan). Journal of  
 Polymer Science, Polymer Letters Edition, 22(3), 129-33 (English)  
 1984. CODEN: JPYBAN. ISSN: 0360-6384.

AB      The title polymers were prep'd. by poly(mg. 2,5-  
 bis(dimethylaminomethyl)hydroquinone (I), 2,5-  
 bis(piperidinomethyl)hydroquinone (II), or 3,6-bis(dimethylamino)  
 catechol (III) [1019-74-5] with different halides in DMSO  
 or ETOH. The reactivity of I and III was higher than that of II as  
 detd. by the reduced viscosity of the polymers. Prolonged polymn.  
 times favored high-mol.-wt. polymers when I was used. II gave only  
 oligomeric ionenes regardless of the dihalide component or solvent  
 used. The products were light reddish powders and were sol. in  
 water or MeOH. 2,5-Bis(dimethylaminomethyl)hydroquinone-p-xylylene  
 dichloride copolymer (IV) [86166-78-1] was cast from MeOH soln. to  
 give brittle films. IV was oxidized in 1.5% Na<sub>2</sub>CO<sub>3</sub> soln. to a  
 benzoquinone structure. Because of its redox property, IV could be  
 used as an O-absorbing agent in water and inhibited the radical  
 polymn. of acrylamide.

IT      50-00-0, reactions  
       (Mannich reaction of, with catechol and  
       dimethylamine)  
 RN      50-00-0 HCPLUS  
 CN      Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IT      124-40-3, reactions  
       (Mannich reaction of, with catechol and  
       formaldehyde)  
 RN      124-40-3 HCPLUS  
 CN      Methanamine, N-methyl- (9CI) (CA INDEX NAME)



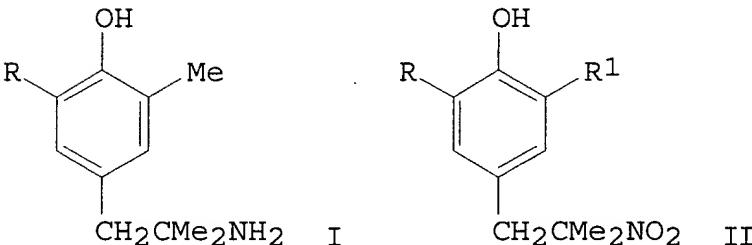
CC      35-7 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 61  
 ST      ionene polymer functional group; hydroquinone ionene polymer;

- IT      catechol ionene polymer; acrylamide polymn inhibitor  
polyionene; water deoxygenation polyionene
- IT      Ionene polymers  
          (catechol-based, prepn. of)
- IT      50-00-0, reactions  
          (Mannich reaction of, with catechol and  
          dimethylamine)
- IT      124-40-3, reactions  
          (Mannich reaction of, with catechol and  
          formaldehyde)
- IT      120-80-9, reactions  
          (Mannich reaction of, with dimethylamine and  
          formaldehyde)

L61 ANSWER 17 OF 26 HCAPLUS COPYRIGHT 2002 ACS

1983:594537 Document No. 99:194537 Ortho-methylation of  
p-(2-amino-2-methylpropyl)phenols. Renger, Bernd (HOECHST A.-G.,  
Frankfurt, D-6230/80, Fed. Rep. Ger.). Archiv der Pharmazie  
(Weinheim, Germany), 316(9), 812-14 (German) 1983. CODEN: ARPMAS.  
ISSN: 0365-6233. OTHER SOURCES: CASREACT 99:194537.

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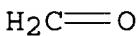
- AB      Methylphenols I (R = H, MeO) were prep'd. from II (R = H, MeO, Cl; R1 = H) by Mannich reaction with Me2NH/HCHO and hydrogenation of II (same R, R1 = CH2NMe2) over Pd/C.
- IT      124-40-3, reactions  
          (Mannich reaction of, with (nitroisobutyl)phenols)
- RN      124-40-3 HCAPLUS
- CN      Methanamine, N-methyl- (9CI) (CA INDEX NAME)

H<sub>3</sub>C—NH—CH<sub>3</sub>

- CC      25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
ST      phenol methyl deriv; cresol aminoisobutyl; Mannich  
          reaction phenol deriv
- IT      Methylation  
          (of phenol derivs. via Mannich reaction)
- IT      124-40-3, reactions

IT    16066-97-0    85628-43-9    85628-46-2  
       (Mannich reaction of, with (nitroisobutyl)phenols)  
       (Mannich reaction of, with dimethylamine and  
       formaldehyde)

L61 ANSWER 18 OF 26 HCPLUS COPYRIGHT 2002 ACS  
 1982:455410 Document No. 97:55410 Effect of certain substituents in  
 aromatic hydroxyketones on the direction of a Mannich  
 reaction. Kuliev, A. M.; Sardarova, S. A.; Agamalieva, M. M.  
 (USSR). Prisadki k Smazochnym Maslom, 7, 3-5 (Russian) 1981.  
 CODEN: PSZMBD. ISSN: 0370-2103. OTHER SOURCES: CASREACT 97:55410.  
 AB    Aminomethylation of 3,4-R(OH)C<sub>6</sub>H<sub>3</sub>COMe (R = Me, Cl) and 4-HOC<sub>6</sub>H<sub>4</sub>COPh  
 with HCHO and Me<sub>2</sub>NH, piperidine, or morpholine in C<sub>6</sub>H<sub>6</sub> at  
 35-40.degree. proceeded exclusively at the ring C ortho to the OH  
 group.  
 IT    50-00-0, reactions  
       (Mannich reaction of hydroxyacetophenones and  
       -benzophenone with secondary amines and, regiospecificity of)  
 RN    50-00-0 HCPLUS  
 CN    Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IT    124-40-3, reactions  
       (Mannich reaction of, with formaldehyde and  
       hydroxyacetophenones and -benzophenone, regiochem. of)  
 RN    124-40-3 HCPLUS  
 CN    Methanamine, N-methyl- (9CI) (CA INDEX NAME)



CC    25-16 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
 ST    Mannich hydroxyphenyl ketone regiospecificity;  
       aminomethylation hydroxyacetophenone hydroxybenzophenone regiochem;  
       acetophenone hydroxy Mannich regiospecificity;  
       benzophenone hydroxy Mannich regiospecificity  
 IT    Ketones, reactions  
       (hydroxyarom., Mannich reaction of,  
       regiospecificity of)  
 IT    Substituent effect  
       (in Mannich reaction of hydroxyacetophenones and  
       -benzophenone)  
 IT    Regiochemistry  
       (of Mannich reaction of hydroxyacetophenones and  
       -benzophenone)  
 IT    Mannich reaction  
       (of hydroxyacetophenones and -benzophenone, regiospecificity of)  
 IT    Amines, reactions

(secondary, Mannich reaction of, with formaldehyde and hydroxyacetophenones and -benzophenone, regiochem. of)

IT 50-00-0, reactions

(Mannich reaction of hydroxyacetophenones and -benzophenone with secondary amines and, regiospecificity of)

IT 876-02-8 1137-42-4 2892-29-7

(Mannich reaction of, regiospecificity of)

IT 110-89-4, reactions 110-91-8, reactions 124-40-3, reactions

(Mannich reaction of, with formaldehyde and hydroxyacetophenones and -benzophenone, regiochem. of)

L61 ANSWER 19 OF 26 HCAPLUS COPYRIGHT 2002 ACS

1980:184291 Document No. 92:184291 Study of Mannich bases

based on cyclopentenylphenols as inhibitors of acid corrosion.

Belov, P. S.; Ivanov, E. S.; Lazarev, V. A. (Mosk. Inst. Neftekhim. Gazov. Prom., Moscow, USSR). Korroziya i Zashchita v Neftegazovoi Promyshlennosti (1), 11-13 (Russian) 1980. CODEN: KZNPAN.

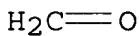
AB The HCHO and Et<sub>2</sub>NH condensation products with cyclopentenylphenols prepd. from PhOH [108-95-2], o-cresol, m-cresol, or p-cresol were tested as steel 10 [12725-33-6] and U8 [12743-82-7] corrosion inhibitors in 4 N HCl. At 10-2 mol/L the condensation product made from cresols was the most effective corrosion inhibitor. The synthesized condensation products were effective corrosion inhibitors in HCl. The inhibitors preserved the plasticity of C steel and may be used with HCl treatments of petroleum-gas wells.

IT 50-00-0, uses and miscellaneous 109-89-7, uses and miscellaneous

(Mannich bases contg., as corrosion inhibitors, for hydrochloric acid treatment of petroleum gas wells)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 109-89-7 HCAPLUS

CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



CC 55-9 (Ferrous Metals and Alloys)

ST steel corrosion hydrochloric inhibitor; petroleum well hydrochloric inhibitor; gas well hydrochloric inhibitor; Mannich base hydrochloric inhibitor; cyclopentenylphenol hydrochloric inhibitor

IT Corrosion inhibitors

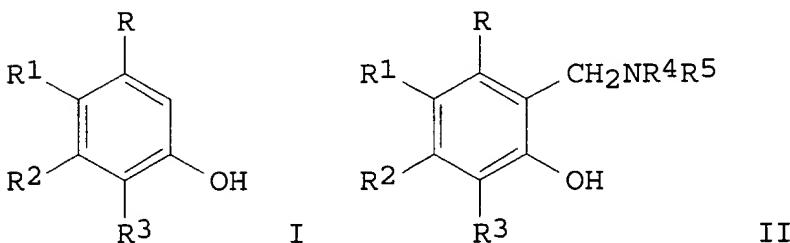
(from Mannich bases based on cyclopentenylphenols, for

- hydrochloric acid treatment of petroleum gas wells)
- IT **Mannich bases**  
(from cyclopentenylphenols, for corrosion inhibitor of steel by hydrochloric acid)
- IT 95-48-7D, cyclopentenyl derivs. 106-44-5D, cyclopentenyl derivs.  
108-39-4D, cyclopentenyl derivs. 108-95-2D, cyclopentenyl derivs.  
(**Mannich bases** based on, as inhibitors for hydrochloric acid treatment of petroleum gas wells)
- IT 50-00-0, uses and miscellaneous 109-89-7, uses and miscellaneous  
(**Mannich bases** contg., as corrosion inhibitors, for hydrochloric acid treatment of petroleum gas wells)
- IT 12725-33-6, reactions 12743-82-7, reactions  
(corrosion of, by hydrochloric acid, **Mannich bases** from cyclopentenylphenols as inhibitors for)

L61 ANSWER 20 OF 26 HCPLUS COPYRIGHT 2002 ACS

1979:611070 Document No. 91:211070 Aminoalkylpolyphenols. Leonete, Mircea; Georgescu, Milpomenia; Toma, Gabriela; Sinchievici, Eleonora; Roncea, Constantin (Rom.). Rom. RO 61894 19770415, 4 pp. (Romanian). CODEN: RUXXA3. APPLICATION: RO 1971-66681 19710124.

GI



- AB Phenols I ( $R = H, CO_2H$ , carbalkoxy;  $R1, R2$ , and  $R3$  are  $H$  or  $OH$ ) reacted with  $HCHO$  and amines to give the resp. II ( $R4$  and  $R5$  are alkyl, or  $NR4R5$  = heterocycle, such as piperidino, morpholino, pyrrolidino), useful as antioxidants in food and plastics (no data). The reaction of gallic acid with  $HCHO$  and  $Me_2NH$  gave II ( $R = CO_2H$ ,  $R1 = H$ ,  $R2 = R3 = OH$ ,  $R4 = R5 = Me$ ).  
IT 109-89-7, reactions 124-40-3, reactions  
(**Mannich** reaction of, with **formaldehyde** and hydroxybenzoic acid derivs.)
- RN 109-89-7 HCPLUS  
CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)

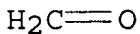


RN 124-40-3 HCPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



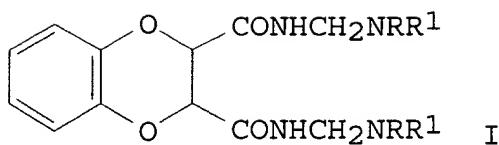
IT 50-00-0, reactions  
     (Mannich reaction of, with hydroxybenzoic acid deriv.)  
 RN 50-00-0 HCPLUS  
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IC C07C091-30  
 CC 25-10 (Noncondensed Aromatic Compounds)  
     Section cross-reference(s): 17, 36  
 ST pyrogallol aminomethyl prepn antioxidant; aminomethylpyrogallol  
     prepn antioxidant food; plastics antioxidant aminomethylpyrogallol  
     prepn; resorcinol aminomethyl prepn antioxidant; Mannich  
     pyrogallol resorcinol hydroquinone  
 IT Antioxidants  
     (carboxy(aminomethyl)benzenediols and -triols).  
 IT Mannich reaction  
     (of hydroxybenzoic acid derivs. with formaldehyde and  
     amines)  
 IT 89-86-1 99-24-1 121-79-9 149-91-7, reactions 490-79-9  
     610-02-6 1034-01-1 1166-52-5 2150-47-2 56128-66-6  
     (Mannich reaction of, with formaldehyde and  
     amines)  
 IT 100-61-8, reactions  
     (Mannich reaction of, with formaldehyde and  
     gallic acid)  
 IT 109-89-7, reactions 110-89-4, reactions 110-91-8,  
     reactions 124-40-3, reactions  
     (Mannich reaction of, with formaldehyde and  
     hydroxybenzoic acid derivs.)  
 IT 50-00-0, reactions  
     (Mannich reaction of, with hydroxybenzoic acid deriv.)

L61 ANSWER 21 OF 26 HCPLUS COPYRIGHT 2002 ACS  
 1978:509293 Document No. 89:109293 Nitrogen-substituted  
 1,4-benzodioxan-2,3-dicarboxamides. I. Mannich bases of  
 1,4-benzodioxan-2,3-dicarboxamide with secondary aliphatic amines.  
 Velichkov, L.; Karag'ozov, S. (Farm. Fak., Med. Akad., Sofia,  
 Bulg.). Farmatsiya (Sofia, Bulgaria), 27(5), 1-5 (Bulgarian) 1977.  
 CODEN: FMTYA2. ISSN: 0428-0296.

GI



- AB Cyclization of o-(HO)2C6H4 with dl-EtO2CCHBrCHBrCO2Et gave 57% di-Et cis- and trans-1,4-benzodioxan-2,3-dicarboxylate, which were converted to the diamides and then aminomethylated with aq. HCHO and RNHR1 (R = R1 = Me, Et, Pr, Bu, EtCHMe; R = PhCH2, R1 = Me, CHMe2) to give 50-70.3% title compds. I.
- IT 109-89-7, reactions 111-92-2 124-40-3,  
reactions 142-84-7 626-23-3  
(aminomethylation of benzodioxandicarboxamide with formaldehyde and)
- RN 109-89-7 HCPLUS
- CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



- RN 111-92-2 HCPLUS
- CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



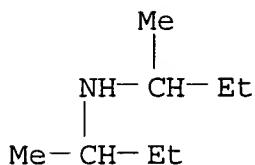
- RN 124-40-3 HCPLUS
- CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



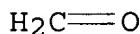
- RN 142-84-7 HCPLUS
- CN 1-Propanamine, N-propyl- (9CI) (CA INDEX NAME)



- RN 626-23-3 HCPLUS
- CN 2-Butanamine, N-(1-methylpropyl)- (9CI) (CA INDEX NAME)



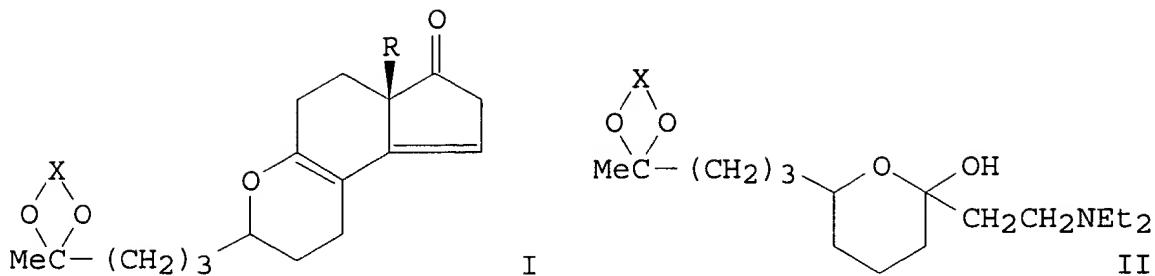
IT 50-00-0, reactions  
     (aminomethylation of benzodioxandicarboxamides with secondary  
     amines and)  
 RN 50-00-0 HCAPLUS  
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



CC 28-12 (Heterocyclic Compounds (More Than One Hetero Atom))  
 ST benzodioxandicarboxamide **Mannich** base; aminomethylation  
     benzodioxandicarboxamide; cyclization **pyrocatechol**  
     dibromosuccinate; succinate dibromo cyclization **pyrocatechol**  
 IT Amines, reactions  
     (second, aminomethylation of benzodioxandicarboxamide with  
     **formaldehyde** and)  
 IT 102-97-6 103-67-3 109-89-7, reactions 111-92-2  
     124-40-3, reactions 142-84-7 626-23-3  
     (aminomethylation of benzodioxandicarboxamide with  
     **formaldehyde** and)  
 IT 50-00-0, reactions  
     (aminomethylation of benzodioxandicarboxamides with secondary  
     amines and)  
 IT 1114-30-3  
     (cyclization of, with **pyrocatechol**)

L61 ANSWER 22 OF 26 HCAPLUS COPYRIGHT 2002 ACS  
 1977:5692 Document No. 86:5692 Aryl ketals of polycyclic oxo  
     compounds. Rosenberger, Michael; Saucy, Gabriel (Hoffmann-La Roche,  
     Inc., USA). U.S. US 3960896 19760601, 23 pp. Division of U.S.  
     3,907,827. (English). CODEN: USXXAM. APPLICATION: US 1975-585145  
     19750609.

GI

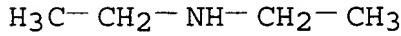


AB The cyclopenta[f][1]benzopyranones I, (R = Et, Me; X = o-phenylene, 4,5-dimethyl-o-phenylene, 2,3-naphthylene), intermediates in the prepn. of 13-ethylgon-4-ene-3,17-dione and 19-norandrostan-4-ene-3,17-dione, were prep'd. by the condensation of 2-ethyl- and 2-methyl-1,3-cyclopentanediones with Mannich base II. II was prep'd. from 9,9-(o-phenylenedioxy)-5-hydroxydecanoic acid lactone by successive reaction with CH<sub>2</sub>:CHMgCl and Et<sub>2</sub>NH.

IT 109-89-7, reactions  
(condensation of, with vinyl(alkylenedioxy)tetrahydropyran)

RN 109-89-7 HCPLUS

CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)

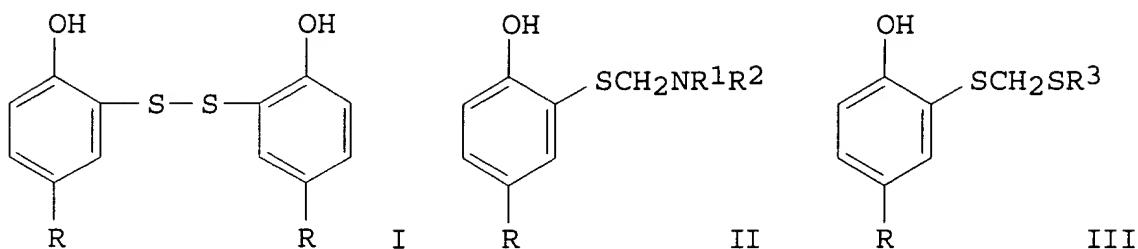


IC C07D317-44  
NCL 260340500  
CC 32-3 (Steroids)  
Section cross-reference(s): 26  
ST gonenedione ethyl; norandrostanediol; cyclopentabenzopyranone; cyclopentanediol Mannich base condensation; hydroxydecanoate lactone vinyl chloride Grignard  
IT 5978-08-5 30513-27-0  
(Grignard reaction of, with glutaraldehyde)  
IT 109-89-7, reactions  
(condensation of, with vinyl(alkylenedioxy)tetrahydropyran)  
IT 30513-19-0P 30513-24-7P  
(prep. and Grignard reaction of, with glutaraldehyde)  
IT 30658-25-4P  
(prep. and ketalization of, with catechol and naphthalenediol)

L61 ANSWER 23 OF 26 HCPLUS COPYRIGHT 2002 ACS  
1976:576991 Document No. 85:176991 Synthesis and some reactions of o-hydroxyalkylthiophenols. Mamedov, F. N.; Aliev, Sh. R.; Movsum-Zade, M.; Gusein-Zade, S. M.; Akchurina, T. Kh. (Inst. Khim. Prisadok, Baku, USSR). Tezisy Dokl. Nauchn. Sess. Khim. Tekhnol. Org. Soedin. Sery Sernistykh Neftei, 13th, 113-14. Editor(s):

Gal'pern, G. D. "Zinatne": Riga, USSR. (Russian) 1974. CODEN:  
33SUAA.

GI



AB Treatment of disulfides I ( $R = Me, Bu, pentyl, C_5H_{11}$ ) with Zn-HCl gave 4,2-R(HS)C<sub>6</sub>H<sub>3</sub>OH, which gave II ( $NR_1R_2 = Et_2N, Bu_2N, morpholino, piperidino$ ) when treated with CH<sub>2</sub>O-HNR<sub>1</sub>R<sub>2</sub>. Reaction of II with R<sub>3</sub>SH ( $R_3 = Bu, C_7H_{15}, C_{12}H_{25}, Ph$ ) gave III.

IT 50-00-0, reactions

(aminomethylation by amines and, of hydroxythiophenols)

RN 50-00-0 HCPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)

$H_2C=O$

IT 109-89-7, reactions 111-92-2

(aminomethylation by formaldehyde and, of hydroxythiopenyl)

RN 109-89-7 HCPLUS

CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)

$H_3C-CH_2-NH-CH_2-CH_3$

RN 111-92-2 HCPLUS

CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)

n-Bu-NH-Bu-n

CC 25-10 (Noncondensed Aromatic Compounds)

IT Aminomethylation

Mannich reaction

(of hydroxybenzenethiols)

IT 50-00-0, reactions

(aminomethylation by amines and, of hydroxythiophenols)

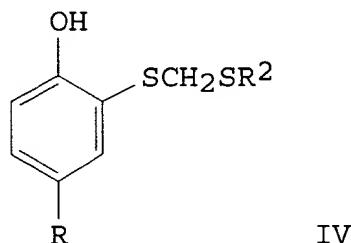
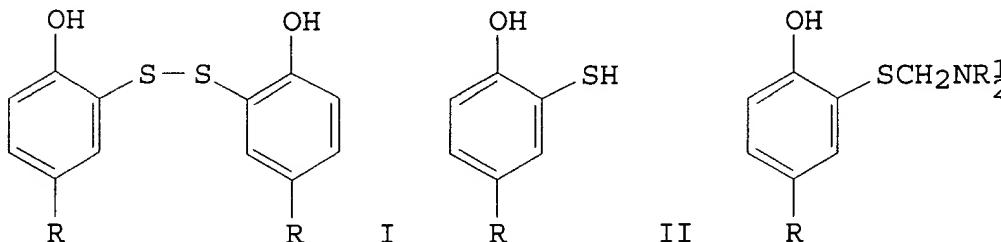
IT 109-89-7, reactions 110-89-4, reactions 110-91-8  
111-92-2

(aminomethylation by formaldehyde and, of hydroxythiopenyl)

L61 ANSWER 24 OF 26 HCPLUS COPYRIGHT 2002 ACS

1976:150277 Document No. 84:150277 Synthesis of aminomethyl derivatives of 2-hydroxy-5-tert-alkylthiophenols and their cleavage by thiols. Kuliev, A. M.; Aliev, Sh. R.; Mamedov, F. N.; Movsum-Zade, M. (Inst. Khim. Prisadok, Baku, USSR). Zhurnal Organicheskoi Khimii, 12(2), 426-31 (Russian) 1976. CODEN: ZORKAE. ISSN: 0514-7492.

GI



AB Redn. of disulfide I ( $R = \text{Me}_3\text{C, CMe}_2\text{CH}_2\text{CMe}_3$ ) with Zn-HCl gave 31.3-43% II. Mannich reaction of II with HCHO and  $\text{R}_1\text{NH}$  ( $\text{R}_1 = \text{Me, Et, Bu; R}_2\text{N} = \text{morpholino, piperidino}$ ) gave 21.4-66.9% III. When III ( $\text{R} = \text{Me}_3\text{C, R}_1 = \text{Me; R} = \text{CMe}_2\text{CH}_2\text{CMe}_3, \text{R}_1 = \text{Et}$ ) were treated with  $\text{R}_2\text{SH}$  ( $\text{R}_2 = \text{Bu, dodecyl, Ph, 5,2-Bu(OH)C}_6\text{H}_3, \text{pentyl}$ ), 44.3-73.4% IV were obtained.

IT 109-89-7, reactions 111-92-2 124-40-3,  
reactions

(Mannich reaction of, with formaldehyde and tert-alkylhydroxythiophenols)

RN 109-89-7 HCPLUS

CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



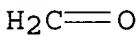
RN 111-92-2 HCAPLUS  
 CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS  
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IT 50-00-0, reactions  
     (**Mannich** reaction of, with tert-  
       alkylhydroxythiophenols)  
 RN 50-00-0 HCAPLUS  
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



CC 25-10 (Noncondensed Aromatic Compounds)  
 ST benzenethiol tertbutyl; aminomethylation hydroxybenzenethiol  
     ; **Mannich** reaction benzenethiol; thiol cleavage  
       aminomethylthiophenol  
 IT Aminomethylation  
     **Mannich** reaction  
       (of hydroxy-tert-alkylthiophenols)  
 IT 109-89-7, reactions 110-89-4, reactions 110-91-8  
     111-92-2 124-40-3, reactions  
       (**Mannich** reaction of, with **formaldehyde** and  
       tert-alkylhydroxythiophenols)  
 IT 50-00-0, reactions  
     (**Mannich** reaction of, with tert-  
       alkylhydroxythiophenols)  
 IT 58999-47-6P 58999-48-7P  
     (prepn. and **Mannich** reaction of)

L61 ANSWER 25 OF 26 HCAPLUS COPYRIGHT 2002 ACS  
 1975:140075 Document No. 82:140075 Synthesis and study of potential  
 inhibitors of the enzyme **catechol-o-methyltransferase**.  
 IV. Condensation of 3,4,5-substituted acetophenones with  
**formaldehyde** and various amines. Veinbergs, J.; Jakobson,  
 I.; Grinsteins, V. (Latv. Gos. Univ. im. Stucka, Riga, USSR).  
 Latvijas PSR Zinatnu Akademijas Vestis, Kimijas Serija (6), 724-8  
 (Russian) 1974. CODEN: LZAKAM. ISSN: 0002-3248.

GI For diagram(s), see printed CA Issue.  
 AB Aminopropiophenones (I; R<sub>1</sub> = R<sub>2</sub> = Et, Me, R<sub>1</sub>R<sub>2</sub>N = morpholino, piperidino, 1,2,3,4-tetrahydro-2-isquinolinyl, 1,4-piperazinediyl; R<sub>3</sub> = Br, NO<sub>2</sub>; R<sub>4</sub> = Me, OH; R<sub>5</sub> = Br, NO<sub>2</sub>) were prep'd. in 8-12% yield where R<sub>3</sub>, R<sub>5</sub> = NO<sub>2</sub> and in 55-79% yields for the remainder by Mannich reaction of an acetophenone with a secondary amine and paraformaldehyde.  
 IT 109-89-7, reactions 124-40-3, reactions  
     506-59-2 660-68-4  
         (Mannich reaction of, with acetophenones)  
 RN 109-89-7 HCPLUS  
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



RN 124-40-3 HCPLUS  
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



RN 506-59-2 HCPLUS  
 CN Methanamine, N-methyl-, hydrochloride (9CI) (CA INDEX NAME)



RN 660-68-4 HCPLUS  
 CN Ethanamine, N-ethyl-, hydrochloride (9CI) (CA INDEX NAME)



● HCl

CC 28-18 (Heterocyclic Compounds (More Than One Hetero Atom))  
 Section cross-reference(s): 25  
 ST Mannich acetophenone amine; propiophenone amino; enzyme inhibition; catechol methyltransferase inhibition

IT 109-89-7, reactions 110-89-4, reactions 110-91-8  
 124-40-3, reactions 142-64-3 506-59-2  
 660-68-4 6091-44-7 10024-89-2 14099-81-1  
 (Mannich reaction of, with acetophenones)  
 IT 2887-72-1 52129-61-0 55548-03-3  
 (Mannich reaction of, with secondary amines)

L61 ANSWER 26 OF 26 HCAPLUS COPYRIGHT 2002 ACS  
 1972:563973 Document No. 77:163973 Mannich reactions on  
 1,2-diketones. Greenhill, J. V.; Ingle, P. H. B.; Ramli, Mohamed  
 (Sch. Pharm., Univ. Bradford, Bradford, UK). Journal of the  
 Chemical Society, Perkin Transactions 1: Organic and Bio-Organic  
 Chemistry (1972-1999) (13), 1667-9 (English) 1972. CODEN: JCPRB4.  
 ISSN: 0300-922X.

GI For diagram(s), see printed CA Issue.

AB The product of a Mannich reaction on MeCOCOMe depended on  
 the secondary base used; with Me<sub>2</sub>NH the product was  
 2,4-bis[(dimethylamino)methyl]-2-methyl-3(2H)-furanone (I); with  
 morpholine or N-methyl-piperazine a bis-Mannich base (e.g.  
 II) derived from 2,5-dimethyl-1,4-benzenediol was  
 obtained, while pyrrolidine gave the expected open-chain deriv.,  
 1,6-dipyrrrolidino-3,4-hexanedione. PhCH<sub>2</sub>-COCOMe and  
 1,2-cyclohexanedione reacted with Me<sub>2</sub>NH to give  
 PhCH<sub>2</sub>C(OH)CO(CH<sub>2</sub>)<sub>2</sub>NMe<sub>2</sub> and 3,6-bis[(dimethylamino)-methyl]-2-hydroxy-  
 2-cyclohexen-1-one.

IT 124-40-3, reactions  
 (Mannich reaction of, with diketones)

RN 124-40-3 HCAPLUS

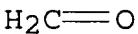
CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IT 50-00-0, reactions  
 (Mannich reaction of, with diketones and secondary  
 amines)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



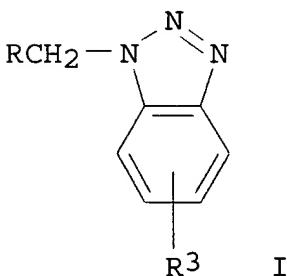
CC 23-15 (Aliphatic Compounds)  
 Section cross-reference(s): 24, 25, 27  
 ST butanedione dimethylamine Mannich; furanone butanedione  
 Mannich dimethylamine; hydroquinone butanedione  
 Mannich morpholine; cyclohexenone Mannich  
 cyclohexanedione; base effect Mannich butanedione;  
 pentanedione Mannich dimethylamine; hexanedione  
 Mannich dimethylamine

IT    Ketones, reactions  
       (Mannich reaction of di- with secondary amines)  
 IT    Amines, reactions  
       (Mannich reaction of secondary, with diketones and phenols)  
 IT    Mannich reaction  
       (of diketones with secondary amines and with phenols)  
 IT    95-54-5, reactions 109-01-3 110-91-8 123-75-1 496-72-0  
       (Mannich reaction of, with butanedione)  
 IT    124-40-3, reactions  
       (Mannich reaction of, with diketones)  
 IT    50-00-0, reactions  
       (Mannich reaction of, with diketones and secondary amines)  
 IT    579-07-7 600-14-6 765-87-7 3848-24-6 4437-51-8 38087-02-4  
       (Mannich reaction of, with dimethylamine)  
 IT    1124-04-5 2785-74-2  
       (Mannich reaction of, with morpholine)  
 IT    431-03-8  
       (Mannich reaction of, with secondary amines)

=> d 162 1-20 cbib abs hitstr hitind

L62 ANSWER 1 OF 20 HCAPLUS COPYRIGHT 2002 ACS  
 2000:106888 Document No. 132:151824 Preparation of benzotriazoles as corrosion inhibitors for copper and copper alloys. Sugii, Naoyuki; Yamauchi, Toshiyuki; Takahashi, Reiichi (Johoku Kagaku Kogyo K. K., Japan). Jpn. Kokai Tokkyo Koho JP 2000044549 A2 20000215, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-213098 19980728.

GI



AB    Benzotriazoles I [R = (un) substituted hydrocarbyl; R3 = H, Me, Cl, CO2R4; R4 = H, alkyl] are prep'd. by treatment of (benzene ring-substituted) 1H-benzotriazole with RCH2NR1R2 (R = the same as above; R1, R2 = H, alkyl; R1 = R2 .noteq. H). The products are also useful as **antioxidants** and light stabilizers for polymers (no data). 1H-benzotriazole was treated with **Mannich** base prep'd. from 2,4-di-*tert*-butylphenol,

**paraformaldehyde**, and Bu<sub>2</sub>NH at 100-120.degree. for 2 h to give 99% condensation product, which showed good corrosion inhibiting effect for Cu plate.

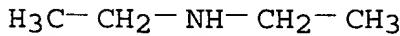
IT 111-92-2, Dibutylamine  
     (prepn. of benzotriazoles as corrosion inhibitors,  
       **antioxidants**, and light stabilizers)  
 RN 111-92-2 HCAPLUS  
 CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)

n-Bu—NH—Bu-n

IC ICM C07D249-18  
     ICS C23F011-00; C23F011-14  
 CC 28-10 (Heterocyclic Compounds (More Than One Hetero Atom))  
     Section cross-reference(s): 37, 56  
 ST benzotriazole prepn corrosion inhibitor copper alloy;  
     **Mannich** base condensation benzotriazole; **antioxidant**  
     light stabilizer polymer benzotriazole prepn  
 IT Corrosion inhibitors  
     (for Cu and Cu alloys; prepn. of benzotriazoles as corrosion  
       inhibitors, **antioxidants**, and light stabilizers)  
 IT **Antioxidants**  
     Light stabilizers  
     (for polymers; prepn. of benzotriazoles as corrosion inhibitors,  
       **antioxidants**, and light stabilizers)  
 IT Polymers, miscellaneous  
     (prepn. of benzotriazoles as **antioxidants** and light  
       stabilizers for polymers)  
 IT Condensation reaction  
     (prepn. of benzotriazoles as corrosion inhibitors,  
       **antioxidants**, and light stabilizers)  
 IT Mannich bases  
     (prepn. of benzotriazoles as corrosion inhibitors,  
       **antioxidants**, and light stabilizers)  
 IT Copper alloy, base  
     (corrosion inhibitors for; prepn. of benzotriazoles as corrosion  
       inhibitors, **antioxidants**, and light stabilizers)  
 IT 132980-36-0P 257907-12-3P 257907-13-4P 257907-14-5P  
     257907-15-6P 257942-63-5P  
     (prepn. of benzotriazoles as corrosion inhibitors,  
       **antioxidants**, and light stabilizers)  
 IT 95-14-7, 1H-Benzotriazole 96-76-4, 2,4-Di-tert-butylphenol  
     111-92-2, Dibutylamine 140-66-9 2409-55-4,  
     2-tert-Butyl-4-methylphenol 2440-22-4,  
     2-(2-Hydroxy-5-methylphenyl)benzotriazole 29385-43-1,  
     Tolyltriazole 30525-89-4, **Paraformaldehyde**  
     113053-50-2, Methyl 1H-Benzotriazole-5-carboxylate  
     (prepn. of benzotriazoles as corrosion inhibitors,  
       **antioxidants**, and light stabilizers)  
 IT 257907-16-7P

(prepn. of benzotriazoles as corrosion inhibitors,  
antioxidants, and light stabilizers)

- L62 ANSWER 2 OF 20 HCPLUS COPYRIGHT 2002 ACS  
 1992:637009 Document No. 117:237009 **Mannich** base- and  
 antimony-containing corrosion inhibitors for aqueous hydrochloric  
 acid-based acidizing compositions for petroleum recovery  
 operations.. Walker, Michael L. (Halliburton Co., USA). Eur. Pat.  
 Appl. EP 489498 A1 19920610, 17 pp. DESIGNATED STATES: R: DE, FR,  
 GB, GR, NL. (English). CODEN: EPXXDW. APPLICATION: EP 1991-310197  
 19911105. PRIORITY: US 1990-608877 19901105.
- AB **Mannich** bases, as corrosion inhibitors for aq. Sb-contg.  
 HCl-based acidizing compns. for petroleum enhanced recovery are  
 prep'd. by reaction of (1) a compd. with a reactive H, (2) a compd.  
 contg. a carbonyl group with a H atom attached to a C atom adjacent  
 to it, (3) an **aldehyde**, and (4) a C5-60-fatty compd. or a  
 C1-18-alkyl N heterocycle. The reaction precursors are reacted at  
 140-250.degree.F for 4-48 h at a 1:0.6-10:0.5-10:0.10-10 equiv.  
 ratio in the presence of a mineral acid catalyst. The Sb source is  
 chosen from Sb<sub>2</sub>O<sub>3</sub>, Sb<sub>2</sub>O<sub>5</sub>, SbCl<sub>3</sub>, SbCl<sub>5</sub>, SbF<sub>3</sub>, SbF<sub>5</sub>, Sb tartrate,  
 citrate, alkali tartrates, alkali citrates, alkali pyroantimonates,  
 and Sb reaction products with ethylene glycol and H<sub>2</sub>O<sub>2</sub>. A corrosion  
 inhibitor was prep'd. by refluxing aq, thiourea 0.15, acetophenone  
 0.3, 3% HCHO, and oleic acid 0.2 mol for 16 h. A  
 corrosion inhibitor (1 mL), prep'd. by blending 4 mL of the above  
**Mannich** base with 4 mL aq. methylnaphthylquinolium chloride  
 and 1.5 mL ethoxylated **nonylphenol**, was incorporated into  
 100 mL 15% aq. HCl, contg. 0.018 M Sb (prep'd. by reacting Sb<sub>2</sub>O<sub>3</sub> and  
 H<sub>2</sub>O<sub>2</sub> in aq. ethylene glycol). Corrosion loss from a coupon (API N80  
 steel) immersed in this soln. for 2 h at 300.degree. was 0.005  
 lb/ft<sup>2</sup>, compared with 0.53 lb/ft<sup>2</sup> for a coupon immersed in a soln.  
 contg. no Sb.
- IT 109-89-7D, Diethylamine, **Mannich** reaction products  
 (**Mannich** reaction products, corrosion inhibitors, for  
 antimony-contg. aq. hydrochloric acid-based acidizing compns.,  
 for petroleum wells)
- RN 109-89-7 HCPLUS  
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



- IT 50-00-0D, Formaldehyde, **Mannich** reaction  
 products 111-92-2D, Dibutyl amine, **Mannich**  
 reaction products  
 (corrosion inhibitors, for antimony-contg. aq. hydrochloric  
 acid-based acidizing compns., for petroleum wells)
- RN 50-00-0 HCPLUS  
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)

H<sub>2</sub>C=O

RN 111-92-2 HCAPLUS  
 CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)

n-Bu-NH-Bu-n

IC ICM E21B043-27  
 ICS E21B041-02; C23F011-04  
 CC 51-2 (Fossil Fuels, Derivatives, and Related Products)  
 Section cross-reference(s): 55  
 ST corrosion inhibitor petroleum well acidizing; **Mannich** base  
 petroleum well acidizing; antimony petroleum well acidizing  
**anticorrosion**  
 IT Petroleum recovery  
 (acidizing in, **anticorrosion** antimony-based  
 hydrochloric acid compns. for, **Mannich** bases as  
 corrosion inhibitors for)  
 IT Petroleum wells  
 (acidizing of, **anticorrosion** antimony-based  
 hydrochloric acid compns. for, **Mannich** bases as  
 corrosion inhibitors for)  
 IT Mannich bases  
 (corrosion inhibiting compns. contg., antimony-based, for  
 acidizing compns. for petroleum well stimulation)  
 IT Amines, compounds  
 (coco alkyl, ethoxylated, reaction products, **Mannich**,  
 corrosion inhibitors, for antimony-contg. aq. hydrochloric  
 acid-based acidizing compns., for petroleum wells)  
 IT Amines, compounds  
 (coco alkyl, reaction products, **Mannich**, corrosion  
 inhibitors, for antimony-contg. aq. hydrochloric acid-based  
 acidizing compns., for petroleum wells)  
 IT Quaternary ammonium compounds, compounds  
 (dicoco alkylidimethyl, **Mannich** reaction products,  
 corrosion inhibitors, for antimony-contg. aq. hydrochloric acid-based  
 acidizing compns., for petroleum wells)  
 IT Essential oils  
 (pine, **Mannich** reaction products, corrosion inhibitors,  
 for antimony-contg. aq. hydrochloric acid-based acidizing  
 compns., for petroleum wells)  
 IT 56-34-8D, Tetraethylammonium chloride, **Mannich** reaction  
 products 75-12-7D, Formamide, **Mannich** reaction products  
 91-22-5D, Quinoline, **Mannich** reaction products 95-87-4D,  
**Mannich** reaction products 102-69-2D, Tripropylamine,  
**Mannich** reaction products 102-82-9D, Tributylamine,  
**Mannich** reaction products 102-86-3D, Trihexylamine,  
**Mannich** reaction products 108-89-4D, 4-Picoline,  
**Mannich** reaction products 108-99-6D, 3-Picoline,

Mannich reaction products 109-73-9D, Butyl amine,  
 Mannich reaction products 109-89-7D, Diethylamine,  
 Mannich reaction products 111-71-7D, Heptanal,  
 Mannich reaction products 112-12-9D, Methyl nonyl ketone,  
 Mannich reaction products 123-72-8D, Butanal,  
 Mannich reaction products 123-76-2D, Levulinic acid,  
 Mannich reaction products 141-43-5D, Mannich  
 reaction products 301-02-0D, Oleamide, Mannich reaction  
 products 628-13-7D, Pyridinium chloride, Mannich  
 reaction products 2591-86-8D, Formylpiperidine, Mannich  
 reaction products 5877-42-9D, Ethyl octynol, Mannich  
 reaction products 53452-70-3, Undecanone 57412-63-2D, Hexynol,  
 Mannich reaction products  
 (Mannich reaction products, corrosion inhibitors, for  
 antimony-contg. aq. hydrochloric acid-based acidizing compns.,  
 for petroleum wells)

IT 50-00-0D, Formaldehyde, Mannich reaction  
 products 57-13-6D, Urea, Mannich reaction products  
 60-35-5D, Acetamide, Mannich reaction products 62-56-6D,  
 Thiourea, Mannich reaction products 78-93-3D,  
 2-Butanone, Mannich reaction products 91-63-4D,  
 Quinaldine, Mannich reaction products 98-86-2D,  
 Acetophenone, Mannich reaction products 107-02-8D,  
 Acrolein, Mannich reaction products 108-48-5D,  
 2,6-Lutidine, Mannich reaction products 108-94-1D,  
 Cyclohexanone, Mannich reaction products 108-95-2D,  
 Phenol, Mannich reaction products 109-06-8D,  
 2-Picoline, Mannich reaction products 110-86-1D,  
 Pyridine, Mannich reaction products 110-91-8D,  
 Morpholine, Mannich reaction products 111-92-2D,  
 Dibutyl amine, Mannich reaction products 112-80-1D,  
 Oleic acid, Mannich reaction products 123-54-6D,  
 2,4-Pentanedione, Mannich reaction products 124-07-2D,  
 Caprylic acid, Mannich reaction products 143-28-2D,  
 Oleyl alcohol, Mannich reaction products 1330-20-7D,  
 Xylene, Mannich reaction products 2055-46-1D,  
 Hexahydropyrimidine-2-thione, Mannich reaction products  
 8000-54-2D, Armid o, Mannich reaction products  
 12125-02-9D, Ammonium chloride, Mannich reaction products  
 31799-71-0D, Ethomid O 17, Mannich reaction products  
 100224-74-6D, Guanidine carbonate, Mannich reaction  
 products  
 (corrosion inhibitors, for antimony-contg. aq. hydrochloric  
 acid-based acidizing compns., for petroleum wells)

L62 ANSWER 3 OF 20 HCAPLUS COPYRIGHT 2002 ACS  
 1990:615212 Document No. 113:215212 Middle distillate fuel  
 having improved storage stability. Bostick, John Gray; Cunningham,  
 Larry John; Hanlon, John Vincent (Ethyl Petroleum Additives, Inc.,  
 USA). Eur. Pat. Appl. EP 385633 A1 19900905, 16 pp. DESIGNATED  
 STATES: R: BE, DE, ES, FR, GB, IT, NL. (English). CODEN: EPXXDW.  
 APPLICATION: EP 1990-301791 19900220. PRIORITY: US 1989-318748

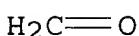
19890302.

AB A fuel additive conc. comprises a mixt. of N,N-dimethylcyclohexylamine, a metal deactivator (e.g., N,N'-disalicylidene-1,2-propylenediamine) and a Mannich base which is the reaction product of an aldehyde (e.g., HCHO), a primary or secondary amine, and a hindered or p-alkylphenol. A such Mannich base is the reaction product of HCHO, 1,3-diaminopropane and 2,6-di-t-butylphenol.

IT 50-00-0D, Formaldehyde, Mannich products with amines and p-alkylphenol or hindered phenol  
 124-40-3D, Dimethylamine, Mannich products with formaldehyde and hindered or p-alkylphenyl (stabilizers contg., and N,N-dimethylcyclohexylamine, for middle distillate fuels)

RN 50-00-0 HCPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 124-40-3 HCPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC ICM C10L001-22  
 ICS C10L001-14

CC 51-9 (Fossil Fuels, Derivatives, and Related Products)

ST middle distillate fuel stabilizer additive;  
 Mannich base middle distillate stabilizer;  
 formaldehyde amine phenol Mannich  
 stabilizer; aldehyde amine phenol  
 Mannich stabilizer; dimethylcyclohexylamine distillate  
 fuel storage stabilizer; metal deactivator distillate  
 fuel stabilizer

IT Mannich bases

(formaldehyde-amines-hindered or p-alkylphenol  
 , stabilizers contg. N,N-dimethylcyclohexylamine and, for middle  
 distillate fuels)

IT Fuels, diesel

(stabilizers for, contg. N,N-dimethylcyclohexylamine and  
 Mannich bases)

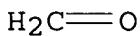
IT Amines, compounds

(C11-14-tert-alkyl, reaction products, with formaldehyde  
 and di-t-butylphenol, stabilizers contg., and  
 N,N-dimethylcyclohexylamine, for middle distillate fuels  
 )

IT Fuel oil additives

(stabilizers, contg. N,N-dimethylcyclohexylamine and  
**Mannich bases**)  
IT 94-91-7, N,N'-Disalicylidene-1,2-propylenediamine  
(metal deactivator, with N,N-dimethylcyclohexylamine and  
**Mannich bases**, for improved storage stability of middle  
distillate fuels)  
IT 98-94-2, N,N-Dimethylcyclohexylamine  
(stabilizers contg., and **Mannich bases**, for middle  
distillate fuels)  
IT 50-00-0D, **Formaldehyde**, Mannich products  
with amines and p-alkylphenol or hindered phenol  
78-90-0D, 1,2-Diaminopropane, Mannich products with  
formaldehyde and hindered or p-alkylphenyl 104-43-8D, P-  
Dodecylphenol, Mannich products with  
formaldehyde and amines 109-55-7D, N,N-Dimethyl-1,3-  
diaminopropane, Mannich products with formaldehyde  
and hindered or p-alkylphenyl 109-76-2D, 1,3-Diaminopropane,  
Mannich products with formaldehyde and hindered or  
p-alkylphenyl 124-40-3D, Dimethylamine, Mannich  
products with formaldehyde and hindered or p-alkylphenyl  
128-39-2D, 2,6-Di-t-butylphenol, Mannich  
products with formaldehyde and amines  
(stabilizers contg., and N,N-dimethylcyclohexylamine, for middle  
distillate fuels)

L62 ANSWER 4 OF 20 HCPLUS COPYRIGHT 2002 ACS  
1990:534078 Document No. 113:134078 Synthesis of 3,5-di-tert-butyl-4-  
hydroxybenzylphosphonic diethyl ester. He, Qizhang; Yao, Ruoying  
(Yangzhou Med. Coll., Yangzhou, Peop. Rep. China). Huaxue Shijie,  
31(1), 16-18 (Chinese) 1990. CODEN: HUAKAB. ISSN: 0367-6358.  
AB Di-Et (3,5-di-tert-butyl-4-hydroxy)benzylphosphonate (I) was prep'd.  
by Mannich reaction of 2,6-di-tert-butylphenol,  
HCHO, and Me<sub>2</sub>NH to give N,N-dimethyl-3,5-di-tert-butyl-4-  
hydroxybenzylamine which was then treated with di-Et phosphonate. I  
was useful as an antioxidant for polyester,  
polyacrylamide, and vinyon fibers.  
IT 50-00-0, **Formaldehyde**, reactions  
(reaction of, with di-tert-butylphenol and  
dimethylamine)  
RN 50-00-0 HCPLUS  
CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IT 124-40-3, reactions  
(reaction of, with di-tert-butylphenol and  
formaldehyde)  
RN 124-40-3 HCPLUS  
CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)

H<sub>3</sub>C—NH—CH<sub>3</sub>

- CC 40-9 (Textiles and Fibers)  
 Section cross-reference(s) : 29
- ST diethyl dibutylhydroxybenzylphosphonate prepн **antioxidant**;  
 polyester fiber **antioxidant** diethyl  
 dibutylhydroxybenzylphosphonate; polyacrylamide fiber  
**antioxidant** diethyl dibutylhydroxybenzylphosphonate; vinyon  
 fiber **antioxidant** diethyl dibutylhydroxybenzylphosphonate
- IT Polyester fibers, uses and miscellaneous  
 Vinyon fibers  
 (**antioxidants** for, di-Et (di-tert-  
 butylhydroxy)benzylphosphonate as)
- IT **Antioxidants**  
 (di-Et (di-tert-butylhydroxy)benzylphosphonate, for polymeric  
 fibers)
- IT Synthetic fibers, polymeric  
 (acrylamide, **antioxidants** for, di-Et  
 (di-tert-butylhydroxy)benzylphosphonate as)
- IT 976-56-7P, Diethyl (3,5-di-tert-butyl-4-hydroxy)benzylphosphonate  
 (prepн. of, as **antioxidants** for polymeric fibers)
- IT 50-00-0, **Formaldehyde**, reactions  
 (reaction of, with di-tert-butylphenol and  
 dimethylamine)
- IT 124-40-3, reactions  
 (reaction of, with di-tert-butylphenol and  
**formaldehyde**)
- IT 128-39-2  
 (reaction of, with **formaldehyde** and dimethylamine)
- IT 9002-86-2  
 (vinyon fibers, **antioxidants** for, di-Et  
 (di-tert-butylhydroxy)benzylphosphonate as)

L62 ANSWER 5 OF 20 HCAPLUS COPYRIGHT 2002 ACS

1989:576313 Document No. 111:176313 Thermosetting compositions for  
 cathodic electrodip coating. Schupp, Hans; Schwerzel, Thomas;  
 Lawrenz, Dirk; Oslowski, Hans Josef; Heimann, Ulrich (BASF Lacke und  
 Farben A.-G., Fed. Rep. Ger.). Ger. Offen. DE 3741161 A1 19890615,  
 6 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1987-3741161  
 19871204.

AB The title compns., giving coatings with good adhesion, contain  
 aminated polymers sol. in aq. acids, crosslinking agents, and  
 0.05-10.0% low-mol. wt. org. complexing agents. An aq. coating bath  
 (1 kg) contg. 137 g 70:30 mixt. of a reaction product (amine no. 105  
 mg KOH/g) of **bisphenol A** epoxy resin, MeNHCH<sub>2</sub>CH<sub>2</sub>OH,  
 1,6-hexaminediamine, dimer acids, and linseed-oil fatty acids and a  
 blocked diisocyanate, 1 phr 2-mercaptopbenzothiazole (I), 3.1 g AcOH,  
 and 139 g TiO<sub>2</sub> pigment paste was coated on sheet metal at pH 7.4 and  
 250 V for 2 min and baked 20 min at 160.degree. to give a 18-.mu.m  
 film and undercutting in salt-spray corrosion testing on untreated

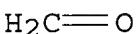
metal (480 h) 1.3 mm and an phosphated metal (1000 h) 0.16 mm; vs.  
22, 4.85, and 0.35, resp., in the absence of I.

IT 50-00-0D, **Formaldehyde**, reaction products with  
**bisphenol A**, **bisphenol A diglycidyl ether**, and  
**dibutylamine 111-92-2D**, **Dibutylamine**, reaction products  
with **formaldehyde**, **bisphenol A**, and  
**bisphenol A diglycidyl ether**

(crosslinking agents, for cathodic electrophoretic coatings)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 111-92-2 HCAPLUS

CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



IC ICM C09D005-44

ICS C09D003-48; C09D005-02

ICA C09D007-00; C09D003-58; C09D003-80; C09D003-72; C09D003-50

CC 42-7 (Coatings, Inks, and Related Products)

ST electrophoretic coating cathodic; mercaptobenzothiazole coating  
electrophoretic; complexing agent coating electrophoretic; epoxy  
resin aminated coating; **anticorrosive** coating  
electrophoretic

IT Crosslinking agents

(Mannich bases and blocked by isocyanates, for cathodic  
electrophoretic coatings)

IT Mannich bases

(crosslinking agents, for cathodic electrophoretic coatings)

IT Coating materials

(**anticorrosive**, electrophoretic, cathodic, contg.

aminated epoxy resins and complexing agents, for good adhesion)

IT 50-00-0D, **Formaldehyde**, reaction products with

**bisphenol A**, **bisphenol A diglycidyl ether**, and

**dibutylamine 77-99-6D**, reaction products with **isophorone**

**diisocyanate 80-05-7D**, reaction products with **bisphenol**

**A diglycidyl ether**, **formaldehyde**, and **dibutylamine**

**111-92-2D**, **Dibutylamine**, reaction products with

**formaldehyde**, **bisphenol A**, and **bisphenol**

**A diglycidyl ether 1675-54-3D**, reaction products with

**bisphenol A**, **formaldehyde**, and **dibutylamine**

**4098-71-9D**, reaction products with polyols **50586-59-9D**, reaction

products with **isophorone diisocyanate**

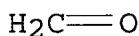
(crosslinking agents, for cathodic electrophoretic coatings)

1989:480020 Document No. 111:80020 Binders for cathodic electrodip coatings. Lawrenz, Dirk; Schupp, Eberhard; Schwerzel, Thomas (BASF Lacke und Farben A.-G., Fed. Rep. Ger.). Eur. Pat. Appl. EP 304854 A2 19890301, 9 pp. DESIGNATED STATES: R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL, SE. (German). CODEN: EPXXDW. APPLICATION: EP 1988-113660 19880823. PRIORITY: DE 1987-3728762 19870828.

AB The title binders, giving good curing at low baking temps., contain 50-95% polymer (mol. wt. 200-20,000) bearing primary and/or secondary OH groups and amino groups (amine no. 30-150) and 5-50% mixt. of blocked polyisocyanates and/or urea resins and **Mannich bases from polyphenols**, HCHO or HCHO donors, and secondary aliph. amines. A condensate (amine no. 233) was prep'd. from 1,6-hexanediamine 12,400, dimer acids 18,660, and linseed-oil fatty acids 3000 g and condensed (662 g) with 566 g iso-BuCOMe to give a product (I) with amine no. 134. Heating **bisphenol A** diglycidyl ether 752, **bisphenol A** 205, phenoxypropanol 50, Ph3P 0.3, 25% I soln. 598, and EtNHCH<sub>2</sub>CH<sub>2</sub>OH 72 g and diln. gave a 70% binder soln. A mixt. of 70% (based on solids) this soln. and 30% mixt. of 14.7 parts urea resin (from trimethylolpropane 134, urea 366, Bu<sub>2</sub>NH 1548, and 1,6-hexanediamine 348 g) and 38.5 parts **Mannich base** (from **bisphenol A** diglycidyl ether 63, **bisphenol A** 152, Bu<sub>2</sub>NH 129, and **paraformaldehyde** 31.5 g) was dild. to 35% solids with aq. AcOH and coated on sheet metal at 350 V and pH 7.1 to give a cured 16-.mu.m film with good corrosion resistance.

IT 50-00-0D, **Formaldehyde**, reaction products with dibutylamine, **bisphenol A**, aminated epoxy resins, and polyamine Schiff bases 111-92-2D, Dibutylamine, reaction products with urea, trimethylolpropane, epoxy resins, polyamine Schiff bases, and **Mannich bases**  
(coatings, electrophoretic, **anticorrosive**)

RN 50-00-0 HCPLUS  
CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 111-92-2 HCPLUS  
CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



IC ICM C09D005-44  
CC 42-7 (Coatings, Inks, and Related Products)  
ST electrophoretic coating **anticorrosive**; amine epoxy resin coating; **Mannich** base coating electrophoretic; urea resin crosslinker coating  
IT Crosslinking agents  
(blocked polyisocyanates and urea resins, for electrophoretic

IT      anticorrosive coatings)

IT      Mannich bases  
       (reaction products with aminated epoxy resins, blocked polyisocyanates, and polyamine Schiff bases, in electrophoretic anticorrosive coatings)

IT      Coating materials  
       (anticorrosive, electrophoretic, aminated epoxy resin-Mannich base reaction products for)

IT      Fatty acids, compounds  
       (linseed-oil, reaction products, with hexanediamine and dimer acids, in electrophoretic anticorrosive coatings)

IT      Fatty acids, polymers  
       (unsatd., dimers, reaction products, with hexanediamine and linseed-oil fatty acids, in electrophoretic anticorrosive coatings)

IT      50-00-0D, Formaldehyde, reaction products with dibutylamine, bisphenol A, aminated epoxy resins, and polyamine Schiff bases 57-13-6D, Urea, polymers, uses and miscellaneous 77-99-6D, reaction products with urea, amines, epoxy resins, polyamine Schiff bases, and Mannich bases 80-05-7D, reaction products with epoxy resins, formaldehyde, dibutylamine, and polyamine Schiff bases 108-10-1D, reaction products with diamine-fatty acid condensates, aminated epoxy resins, blocked polyisocyanates, and Mannich bases 110-73-6D, 2-(Ethylamino)ethanol, reaction products with epoxy resins, polyamine Schiff bases, blocked polyisocyanates, and Mannich bases 111-92-2D, Dibutylamine, reaction products with urea, trimethylolpropane, epoxy resins, polyamine Schiff bases, and Mannich bases 124-09-4D, 1,6-Hexanediamine, reaction products with fatty acids, ketones, aminated epoxy resins, blocked polyisocyanates, and Mannich bases 4035-89-6D, 1,3,5-Tris(6-isocyanatohexyl)biuret, reaction products with dibutylamine, aminated epoxy resins, polyamine Schiff bases, and Mannich bases 25068-38-6D, reaction products with polyamine Schiff bases, blocked polyisocyanates, and Mannich bases  
       (coatings, electrophoretic, anticorrosive)

L62 ANSWER 7 OF 20 HCPLUS COPYRIGHT 2002 ACS

1989:410089 Document No. 111:10089 Amine compatibility aids in lubricating oil compositions. Emert, Jacob; Waddoups, Malcolm (Exxon Chemical Patents, Inc., USA). Eur. Pat. Appl. EP 294045 A2 19881207, 20 pp. DESIGNATED STATES: R: BE, DE, FR, GB, IT, NL. (English). CODEN: EPXXDW. APPLICATION: EP 1988-304280 19880511. PRIORITY: US 1987-48722 19870511.

AB      Amine compatibility aids in lubricating oil compns. contg. Cu antioxidants, high mol.-wt. dispersants, high total base-no. detergents, and various antiwear-friction modifier materials are of the general formula R<sub>1</sub>R<sub>2</sub>NH, where R<sub>1</sub> and R<sub>2</sub> are independently H or C<sub>4</sub>-20 hydrocarbyl groups selected from (un)substituted alkyl, alkenyl, aryl, aralkyl, alkaryl or cycloalkyl group, and R<sub>1</sub> and R<sub>2</sub> are not both H and together contain >8 C atoms.

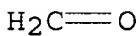
These amines may, in some cases, replace at least a portion of previously used compatibility aids and **antioxidants**.

Thus, an additive package conc. was formulated contg. cupric oleate 1.5, di(nonylphenyl) amine 1.3, and diluent oil (contg. dispersant, overbased sulfonate, detergent, Zn dialkyldithiophosphate, nonylphenyl sulfide) 97.2 wt.%, and then mixed with **lubricating** oils to yield .apprx.0.1 wt.% amine in the finished compn. The formulation was subjected to an accelerated stability test, resulting in improved storage stability, e.g., 68 days and 33 days to appearance of haze or sediment at 54.degree. and 66.degree., resp.

IT 50-00-0, **Formaldehyde**, uses and miscellaneous  
(ashless dispersants, **lubricating** oils contg., amine  
compatibility aids in)

RN 50-00-0 HCPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IT 112-99-2, Dioctadecylamine 143-16-8, Dihexylamine  
(compatibility aid, **lubricating** oils contg.)

RN 112-99-2 HCPLUS

CN 1-Octadecanamine, N-octadecyl- (9CI) (CA INDEX NAME)



RN 143-16-8 HCPLUS

CN 1-Hexanamine, N-hexyl- (9CI) (CA INDEX NAME)



IC ICM C10M163-00  
ICS C10L001-14; C10M141-10

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

ST **lubricating** oil amine compatibility aid;  
dinonylphenylamine compatibility aid **lubricating** oil;  
**antioxidant** copper oleate amine aid

IT Fuel oil  
(compatibility aids for, amines as)

IT **Lubricating** oil additives  
(compatibility aids, amines as)

IT Naphthenic acids, compounds  
(copper salts, **antioxidant**, for **lubricating**  
oils contg. amine compatibility aids)

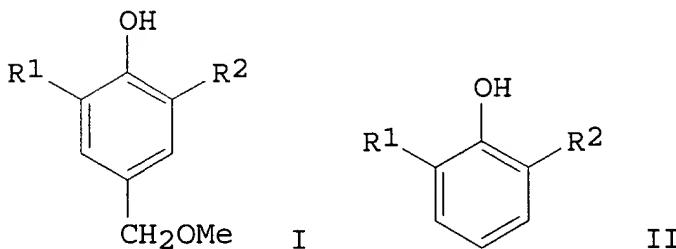
IT Amines, uses and miscellaneous  
(secondary, compatibility aids, for **lubricating** and

- fuel oils)
- IT 10402-16-1, Copper oleate 19179-44-3, Copper laurate  
 (antioxidant, for lubricating oils contg.  
 amine compatibility aids)
- IT 15834-33-0D, Phosphorodithioic acid, dialkyl esters, zinc salts  
 (antiwear additive, for lubricating oils  
 contg. amine compatibility aids)
- IT 50-00-0, Formaldehyde, uses and miscellaneous  
 108-95-2D, Phenol, derivs., Mannich reaction  
 products with formaldehyde and polyalkylenepolyamines  
 123-56-8D, 2,5-Pyrrolidinedione, polyisobutylene derivs.  
 (ashless dispersants, lubricating oils contg., amine  
 compatibility aids in)
- IT 112-99-2, Dioctadecylamine 143-16-8, Dihexylamine  
 36878-20-3 100041-12-1, Irganox L57 111019-18-2, Vanlube SL  
 (compatibility aid, lubricating oils contg.)
- IT 25496-72-4, Glycerol monooleate  
 (friction modifier contg., lubricating oils contg.,  
 amine compatibility aids in)
- IT 56358-04-4, Nonylphenyl sulfide  
 (lubricating oils contg., amine compatibility aids in)

L62 ANSWER 8 OF 20 HCPLUS COPYRIGHT 2002 ACS

1989:57300 Document No. 110:57300 Processes for the preparation of 2,6-dialkyl-4-(methoxymethyl)phenols in the production of antioxidant 1,3,5-trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxybenzyl)benzene. Mina, George L. (Ethyl Corp., USA). U.S. US 4754077 A 1980628, 7 pp. Cont.-in-part of U.S. Ser. No. 450,207, abandoned. (English). CODEN: USXXAM. APPLICATION: US 1986-846085 19860331. PRIORITY: US 1982-450207 19821216.

GI



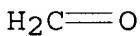
- AB Dialkyl(methoxymethyl)phenols I (R<sub>1</sub>, R<sub>2</sub> = alkyl) are prep'd. by reaction of dialkylphenols II with HCHO and excess MeOH at 50-200.degree. in the presence of a Mannich base catalyst. A mixt. of 5.4 g paraformaldehyde, 66 mL MeOH, and 1.35 g 40 wt.% aq. Me<sub>2</sub>NH was refluxed and treated with 30.9 g II (R<sub>1</sub> = R<sub>2</sub> = CMe<sub>3</sub>) in 15 mL MeOH over 2 h. The mixt. was stirred at 95.degree. in a sealed vessel for 2.5 h and evapd. to give 37 g product contg. I (R<sub>1</sub> = R<sub>2</sub> =

CMe<sub>3</sub>) (III) 91.7, 4,4'-methylenebis(2,6-di-tert-butylphenol) 3.2, starting phenol 0.3, methoxymethoxymethyl homolog 2.0, and others 1.4%. In contrast, a prior method using NaOH instead of Me<sub>2</sub>NH gave resp. values of 30.2, 44.8, 0, 0, and 21.8%. Reaction of III with mesitylene in CH<sub>2</sub>Cl<sub>2</sub>-AcOH-H<sub>2</sub>SO<sub>4</sub> gave the title antioxidant in good yield and >99% purity.

IT 124-40-3, Dimethylamine, reactions  
 (Mannich reaction of, with formaldehyde and dialkylphenols)  
 RN 124-40-3 HCPLUS  
 CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IT 50-00-0, Formaldehyde, reactions  
 (condensation of, with methanol and dialkylphenols)  
 RN 50-00-0 HCPLUS  
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



IC ICM C07C045-00  
 NCL 568662000  
 CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
 ST alkylmethoxymethylphenol prep intermediate  
 antioxidant; phenol dialkylmethoxymethyl prep  
 intermediate antioxidant  
 IT Antioxidants  
 (trimethyltris(di-tert-butylhydroxybenzyl)benzene)  
 IT 124-40-3, Dimethylamine, reactions  
 (Mannich reaction of, with formaldehyde and dialkylphenols)  
 IT 88-27-7  
 (catalyst, for condensation of methanol and formaldehyde  
 with dialkylphenols)  
 IT 108-67-8, Mesitylene, reactions  
 (condensation of, with di-tert-butyl(methoxymethyl)phenol )  
 IT 67-56-1, Methanol, reactions  
 (condensation of, with formaldehyde and dialkylphenols)  
 IT 50-00-0, Formaldehyde, reactions 30525-89-4,  
 Paraformaldehyde  
 (condensation of, with methanol and dialkylphenols)  
 IT 128-39-2, 2,6-Di-tert-butylphenol  
 (condensation of, with methanol and formaldehyde)  
 IT 87-97-8P, 2,6-Di-tert-butyl-4-(methoxymethyl)phenol  
 (prep. and condensation of, with mesitylene)

IT 1709-70-2P  
 (prepn. of, as **antioxidant**)

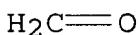
L62 ANSWER 9 OF 20 HCAPLUS COPYRIGHT 2002 ACS  
 1988:440586 Document No. 109:40586 Surfactants from lignin. Naae,  
 Douglas G.; Whittington, Lawrence E.; Ledoux, Will A.; Debons,  
 Francis E. (Texaco Inc., USA). U.S. US 4739040 A 19880419, 16 pp.  
 (English). CODEN: USXXAM. APPLICATION: US 1986-946270 19861224.

AB Surfactants used in a surfactant system to recover oil from underground formations are produced by reducing lignin in the presence of CO or H reducing agent at high temp. and pressure to produce low-mol. wt. lignin **phenols** and subjecting the lignin **phenols** to >1 or a combination of several reactions, e.g., alkoxylation, alkylation, sulfonation, sulfation, alkoxy sulfation, and sulfomethylation. Thus, sulfated lignin **phenols**, prep'd. by reducing kraft lignin or lignosulfonate under CO and/or H<sub>2</sub>S at 310-350.degree. and sulfation, were evaluated for their enhanced oil recovery in single surfactant core floods, resulting in <21% of water flood residual oil recovery when used alone as primary surfactants.

IT 50-00-0D, **Formaldehyde**, Mannich products with lignin or lignosulfonate and amines, sulfated 143-16-8D, Dihexylamine, Mannich reaction products with **formaldehyde** and kraft lignin, sulfated (surfactants, for petroleum recovery)

RN 50-00-0 HCAPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 143-16-8 HCAPLUS  
 CN 1-Hexanamine, N-hexyl- (9CI) (CA INDEX NAME)



IC ICM C08H005-02  
 ICS C07C043-115  
 NCL 530503000  
 CC 51-2 (Fossil Fuels, Derivatives, and Related Products)  
 Section cross-reference(s): 43, 46  
 IT **Fuel gases**  
 (synthesis gas, reducing agent, for prepn. of lignin surfactants, for petroleum recovery)  
 IT 7790-94-5, Chlorosulfonic acid 63147-26-2, Trimethylamine-sulfur trioxide complex  
 (sulfating agent, for lignin **phenols**, in prepn. of surfactants for petroleum recovery)  
 IT 7446-11-9, Sulfur trioxide, uses and miscellaneous 7664-93-9,

Sulfuric acid, uses and miscellaneous      35346-47-5, Sulfur trioxide-dioxane complex

(sulfonating agent, for lignin phenols, in prepn. of surfactants for petroleum recovery)

IT 50-00-0D, **Formaldehyde, Mannich products**  
 with lignin or lignosulfonate and amines, sulfated 143-16-8D,  
 , Dihexylamine, **Mannich reaction products with formaldehyde** and kraft lignin, sulfated 8061-51-6D,  
 Lignosite 458, reduced, (alkoxy)sulfated or sulfonated or propoxylated/ethoxylated, or alkylated or sulfomethylated 8062-15-5D, Lignosulfonic acid, salts, **Mannich reaction products with N-ethylbenzylamine, and formaldehyde**, sulfated 8068-05-1D, Indulin AT, reduced, (alkoxy)sulfated or sulfonated or propoxylated/ethoxylated, or alkylated or sulfomethylated 8075-67-0D, Indulin C, reduced, (alkoxy)sulfated or sulfonated or propoxylated/ethoxylated, or alkylated or sulfomethylated 9041-76-3D, Lignosite, reduced, (alkoxy)sulfated or sulfonated or propoxylated/ethoxylated, or alkylated or sulfomethylated 14321-27-8D, N-Ethylbenzylamine, **Mannich products with formaldehyde** and lignosulfonates, sulfated (surfactants, for petroleum recovery)

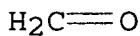
L62 ANSWER 10 OF 20 HCAPLUS COPYRIGHT 2002 ACS  
 1988:153469 Document No. 108:153469 **Phenolic-containing Mannich base reaction products and lubricant compositions containing same.** Chibnik, Sheldon (Mobil Oil Corp., USA). U.S. US 4717492 A 19880105, 5 pp. (English). CODEN: USXXAM. APPLICATION: US 1985-813813 19851227.

AB **Antioxidants for lubricating oils or greases** are reaction products made by reacting a preformed Mannich base with reactive hydrocarbyl amines contg. >1 reactive H at 1-2:1 base-amine molar ratio and from ambient to .apprx.250.degree.; the **Mannich base** is prep'd. from (1) a **phenol**, (2) a C1-8 alkyl **aldehyde**, and (3) an amine having a lower b.p. than that of the reactive amine. Thus, a solvent refined **paraffinic** neutral oil blended with 1% reaction products of PhNH<sub>2</sub> and Ethyl 703 were evaluated for **antioxidn.** characteristics at 325.degree.F for 40 h, resulting in viscosity change 18.1%, vs. 334% for a control oil.

IT 50-00-0D, **Mannich reaction products with amines, and phenols, reaction products with hydrocarbylamines 109-89-7D, reaction products with C1-7-alkylaldehydes, phenols, and hydrocarbylamines 110-68-9D, Methylbutylamine, reaction products with C1-7-alkylaldehydes, phenols, and hydrocarbylamines 110-96-3D, Diisobutylamine, reaction products with C1-7-alkylaldehydes, phenols, and hydrocarbylamines 111-92-2D, reaction products with C1-7-alkylaldehydes, phenols, and hydrocarbylamines 124-40-3D, reaction products with C1-7-alkylaldehydes, phenols, and hydrocarbylamines (antioxidants, for lubricating oils or**

greases)

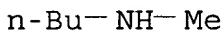
RN 50-00-0 HCPLUS  
CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 109-89-7 HCPLUS  
CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



RN 110-68-9 HCPLUS  
CN 1-Butanamine, N-methyl- (9CI) (CA INDEX NAME)



RN 110-96-3 HCPLUS  
CN 1-Propanamine, 2-methyl-N-(2-methylpropyl)- (9CI) (CA INDEX NAME)



RN 111-92-2 HCPLUS  
CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



RN 124-40-3 HCPLUS  
CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



IC ICM C10M129-10  
NCL 252051500R  
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)  
ST antioxidant lubricant Mannich base  
amine; lubricating oil antioxidant  
Mannich amine; grease lubricating  
antioxidant Mannich amine; aniline Mannich  
base product antioxidant  
IT Mannich bases

(reaction products with amines, **antioxidants**, for lubricating oils or **greases**)

IT Lubricating grease additives

Lubricating oil additives

(**antioxidants**, Mannich base-hydrocarbyl amine reaction products)

IT 50-00-0D, Mannich reaction products with amines, and **phenols**, reaction products with hydrocarbylamines  
 62-53-3D, reaction products with **Mannich base** 88-27-7D,  
 Ethyl 703, reaction products with hydrocarbyl amines 90-30-2D,  
 N-Phenyl-.alpha.-naphthylamine, reaction products with  
**Mannich base** 95-14-7D, Benzotriazole, reaction products  
 with **Mannich base** 100-61-8D, reaction products with  
**Mannich base** 101-77-9D, reaction products with  
**Mannich base** 106-50-3D, reaction products with  
**Mannich base** 108-95-2D, C18-C24+ alkylated  
 dibutylaminomethyl derivs., reaction products with hydrocarbylamines  
 109-89-7D, reaction products with C1-7-  
**alkylaldehydes**, **phenols**, and hydrocarbylamines  
 110-68-9D, Methylbutylamine, reaction products with C1-7-  
**alkylaldehydes**, **phenols**, and hydrocarbylamines  
 110-96-3D, Diisobutylamine, reaction products with C1-7-  
**alkylaldehydes**, **phenols**, and hydrocarbylamines  
 110-97-4D, Diisopropanolamine, reaction products with C1-7-  
**alkylaldehydes**, **phenols**, and hydrocarbylamines  
 111-92-2D, reaction products with C1-7-  
**alkylaldehydes**, **phenols**, and hydrocarbylamines  
 124-40-3D, reaction products with C1-7-  
**alkylaldehydes**, **phenols**, and hydrocarbylamines  
 302-01-2D, reaction products with **Mannich base**  
 1072-71-5D, 2,5-Dimercapto-1,3,4-thiadiazole, reaction products with  
**Mannich base** 5285-60-9D, 4,4'-Bis-(sec-  
 butylamino)diphenylmethane, reaction products with **Mannich**  
 base 28675-17-4D, Dodecylaniline, reaction products with  
**Mannich base** 29385-43-1D, reaction products with  
**Mannich base** 113754-92-0D, reaction products with  
**Mannich base**  
 (**antioxidants**, for **lubricating oils or greases**)

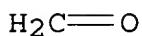
L62 ANSWER 11 OF 20 HCAPLUS COPYRIGHT 2002 ACS

1986:35608 Document No. 104:35608 Cathodically depositable electrodip lacquer binder. Paar, Willimald; Gmoser, Johann; Hoenig, Helmut (Vianova Kunsthars A.-G., Austria). Austrian AT 3708537 B 19850826, 8 pp. (German). CODEN: AUXXAK. APPLICATION: AT 1984-884 19840316.

AB The title binders, giving **anticorrosive** films curable at 150-160.degree., are prep'd. by the reaction of epoxy resins (epoxy equiv. 180-1000) with 0.6-1 mol primary amine/epoxy group, 0.5-1 mol **ph nol/NH** group, and 0.6-0.8 mol **HCHO** per reactive site on the **phenol** at 50-90.degree. in aprotic solvents. Thus, heating 351.5 parts soln. (0.8 mol NH) adduct of 190 parts (1

equiv.) **bisphenol A** epoxy resin with 59 parts Et<sub>2</sub>N(CH<sub>2</sub>)<sub>3</sub>NH<sub>2</sub> and 58 parts 2-ethylhexylamine with 182 parts **bisphenol A** and 75.8 parts 91% **paraformaldehyde** at 80.degree. until the free HCHO content was <0.3% gave a binder compn. with amine no. 135 mg KOH/g, requiring 50 mmol ACOH/100 g (20.7% neutralization) to give a 38%-solids dispersion. An 18%-solids, pigmented dispersion of this binder was cathodically coated to 18-22 .mu. (dry basis) on Zn-phosphated steel and baked 30 min at 160.degree. to give a film with salt-spray corrosion <2 mm in 700 h.

IT 50-00-0D, reaction products with **phenols** and aminated epoxy resins 109-89-7D, reaction products with epoxy resins, **Mannich** base derivs.  
(binders, for cathodic electrophoretic coatings)  
RN 50-00-0 HCPLUS  
CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 109-89-7 HCPLUS  
CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)

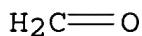


IC ICM C09D005-44  
CC 42-7 (Coatings, Inks, and Related Products)  
ST electrostatic coating cathodic binder; corrosion resistance electrostatic dip coating; **Mannich** base binder coating; **bisphenol A** resin coating; ethylhexylamine adduct coating; diethylpropanediamine adduct coating; aminated epoxy resin coating  
IT **Mannich** bases  
(epoxy resin derivs., binders for cathodic electrophoretic coatings)  
IT Coating materials  
(anticorrosive, cathodic, electrophoretic, binders for, epoxy resin **Mannich** base derivs. as)  
IT 50-00-0D, reaction products with **phenols** and aminated epoxy resins 80-05-7D, reaction products with **formaldehyde** and aminated epoxy resins 104-75-6D, reaction products with epoxy resins, **Mannich** base derivs.  
104-78-9D, reaction products with epoxy resins, **Mannich** base derivs. 108-95-2D, reaction products with **formaldehyde** and aminated epoxy resins 109-73-9D, reaction products with epoxy resins, **Mannich** base derivs.  
109-89-7D, reaction products with epoxy resins, **Mannich** base derivs. 124-09-4D, reaction products with epoxy resins, **Mannich** base derivs. 9072-62-2D, aminated, **Mannich** base derivs. 25068-38-6D, aminated,

**Mannich base derivs.**

(binders, for cathodic electrophoretic coatings)

- L62 ANSWER 12 OF 20 HCPLUS COPYRIGHT 2002 ACS  
 1983:162538 Document No. 98:162538 Cathodic electrodip coatings.  
 Gulbins, Erich; Haardt, Axel; Sabelus, Guenther (BASF A.-G. , Fed. Rep. Ger.). Ger. DE 3210540 C1 19830127, 9 pp. (German). CODEN: GWXXAW. APPLICATION: DE 1982-3210540 19820323.
- AB The title coatings, providing corrosion protection without phosphation, contain aminated polymers and S and/or dithiocarbamates. Thus, a mixt. of 70% binder soln. (prep'd. from **bisphenol A**, diethanolamine, ( $\text{MeOCH}_2\text{CH}_2\right)_2\text{NH}$ , **HCHO**, **bisphenol A** epoxy resin, and pentaerythritol epoxy resin, mol. wt. 860) 222.0, AcOH 2.8, tetramethylthiuram disulfide (I) [137-26-8] 3.7, talc 48.0, carbon black 9.8, C10-14 fatty alc. 30.0, and H<sub>2</sub>O 100.0 parts was dild. with H<sub>2</sub>O to 12% solids (pH 8.2), coated on degreased steel at 190 V and 30.degree. for 2 min, rinsed, and baked 20 min at 190.degree. to give a 18-.mu. film with salt-spray corrosion (168 h) 5 mm, compared with >10 without I.
- IT 50-00-0D, reaction products with **bisphenol A**, amines and epoxy resins 111-92-2D, reaction products with **bisphenol A**, **formaldehyde** and epoxy resins (coatings, electrophoretic and **anticorrosive**)
- RN 50-00-0 HCPLUS
- CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



- RN 111-92-2 HCPLUS  
 CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)



- IC C09D005-40; C09D005-08; C25D013-04; C25D013-10  
 CC 42-7 (Coatings, Inks, and Related Products)  
 ST electrophoretic coating cathodic; **anticorrosive** coating electrophoretic; **Mannich** base coating electrophoretic; thiuram disulfide coating electrophoretic; epoxy resin condensate coating; diethanolamine condensate coating; pentaerythritol epoxy resin coating
- IT Coating materials (antico**rrosive**, aminated epoxy resins and thiuram derivs., as electrophoretic cathodic)
- IT Coating materials (antico**rrosive**, cathodic, electrophoretic, aminated epoxy resins and thiuram derivs.)
- IT 50-00-0D, reaction products with **bisphenol A**, amines and epoxy resins 79-06-1D, reaction products with

phenolic indene resins, formaldehyde and diethanolamine 80-05-7D, reaction products with diethanolamine, formaldehyde and epoxy resins 104-76-7D, esters with TDI, reaction products with epoxy resins and diethanolamine 111-42-2D, reaction products with bisphenol A, formaldehyde and epoxy resins 111-92-2D, reaction products with bisphenol A, formaldehyde and epoxy resins 111-95-5D, reaction products with bisphenol A, formaldehyde and epoxy resins 25068-38-6D, reaction products with bisphenol A, amines and formaldehyde 26471-62-5D, ethylhexyl esters, reaction products with epoxy resins and diethanolamine 30973-88-7D, reaction products with bisphenol A, amines and formaldehyde (coatings, electrophoretic and anticorrosive)

IT 102-77-2 137-26-8 142-71-2 7704-34-9, uses and miscellaneous (in electrophoretic coatings, cathodic and anticorrosive )

L62 ANSWER 13 OF 20 HCPLUS COPYRIGHT 2002 ACS  
 1983:108972 Document No. 98:108972 Polyaddition-polycondensation product containing basic nitrogen groups and its use. Kempter, Fritz Erdmann; Schupp, Eberhard (BASF A.-G., Fed. Rep. Ger.). Ger. Offen. DE 3124089 A1 19830105, 29 pp. (German). CODEN: GWXXBX.

APPLICATION: DE 1981-3124089 19810619.

AB Binders for electrophoretic coatings are prep'd. by addn. of Mannich bases (from phenols, secondary alkanolamines, and HCHO) to epoxy resins, and contain [3-(dialkylamino)propionamido]methyl groups bonded to arom. rings. Thus, a 67% soln. of 210:500 4-vinylcyclohexane diepoxyde-bisphenol condensate 434.3, acrylamide 136.5, paraformaldehyde (I) 79.7, p-tert-BuC<sub>6</sub>H<sub>4</sub>OH 91, and bisphenol A 78 parts were condensed in the presence of BF<sub>3</sub>.Et<sub>2</sub>O and then with 202 parts diethanolamine (II), and a 58.9% soln. of this product 288.1, bisphenol A 125, I 33.5, II 37.5, Bu<sub>2</sub>NH 40, dihexylamine 50, bisphenol A diglycidyl ether 137.3, and pentaerythritol triglycidyl ether 54.7 parts were condensed at 70-80.degree.. A 74.1% soln. of this product (100 parts), 80 ppm Cu [as Cu(OAc)<sub>2</sub>], 1 part Co-Soligen (8% Co), and 1.8% AcOH were dild. with H<sub>2</sub>O to 1000 parts (pH 7.4, elec. cond. 1180 .mu.S/cm), mixed with 10 parts isodecanol, coated on steel at 85 V and 30.degree. for 2 min, and baked 20 min at 180.degree. to give a 14-16 .mu. coating with Erichsen indentation 8.9 mm.

IT 50-00-0D, reaction products with amines, phenols and epoxy resins 111-92-2D, reaction products with phenols, formaldehyde and epoxy resins 143-16-8D, reaction products with phenols, formaldehyde and epoxy resins (coatings, electrophoretic cathodic)

RN 50-00-0 HCPLUS  
 CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)

$\text{H}_2\text{C}=\text{O}$

RN 111-92-2 HCPLUS  
 CN 1-Butanamine, N-butyl- (9CI) (CA INDEX NAME)

n-Bu—NH—Bu-n

RN 143-16-8 HCPLUS  
 CN 1-Hexanamine, N-hexyl- (9CI) (CA INDEX NAME)

Me—(CH<sub>2</sub>)<sub>5</sub>—NH—(CH<sub>2</sub>)<sub>5</sub>—Me

IC C08G059-50; C08G014-06; C09D003-58; C09D005-02; C09D005-40;  
 C25D013-06  
 CC 42-7 (Coatings, Inks, and Related Products)  
 ST epoxy coating **anticorrosive** waterborne; **Mannich**  
 base epoxy coating; aminopropionamide deriv coating; diethanolamine  
 condensate coating; pentaerythritol glycidyl ether coating; glycidyl  
 ether polyol coating  
 IT Phenols, compounds  
     (reaction products with amines, **formaldehyde** and epoxy  
     resins, in cathodic electrophoretic coatings)  
 IT Mannich bases  
     (reaction products with epoxy resins, in cathodic electrophoretic  
     coatings)  
 IT Amines, compounds  
     (reaction products with **formaldehyde**, **phenols**  
     and epoxy resins, in electrophoretic cathodic coatings)  
 IT Coating materials  
     (**anticorrosive**, electrophoretic, **Mannich**  
     base-epoxy resin condensates for cathodic)  
 IT Coating materials  
     (cathodic, **Mannich** base-epoxy resin condensates for)  
 IT Coating materials  
     (electrophoretic, **Mannich** base-epoxy resin condensates  
     for)  
 IT 50-00-0D, reaction products with amines, **phenols**  
 and epoxy resins 79-06-1D, reaction products with  
**formaldehyde**, **phenols** and aminated epoxy resins  
 80-05-7D, reaction products with **formaldehyde**, amines and  
**phenolic** resins 98-54-4D, reaction products with  
**formaldehyde**, amines and **phenolic** resins  
 106-87-6D, reaction products with **phenols**,  
**formaldehyde** and amines 108-95-2D, reaction products with  
**formaldehyde**, amines and **phenolic** resins  
 111-42-2D, reaction products with **phenols**,  
**formaldehyde** and epoxy resins 111-92-2D, reaction

products with phenols, formaldehyde and epoxy resins 143-16-8D, reaction products with phenols, formaldehyde and epoxy resins 1675-54-3D, reaction products with phenols, formaldehyde and amines 13236-00-5D, reaction products with phenols, formaldehyde and amines (coatings, electrophoretic cathodic)

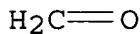
L62 ANSWER 14 OF 20 HCPLUS COPYRIGHT 2002 ACS  
 1982:530420 Document No. 97:130420 Transamination for Mannich products. Basalay, Robert J.; Udelhofen, John H. (Standard Oil Co. (Indiana), USA). U.S. US 4334085 A 19820608, 6 pp. (English). CODEN: USXXAM. APPLICATION: US 1978-942187 19780914.

AB A transamination of a Mannich condensation product (prepd. from a polybutyl- or polybutenylphenol, HCHO [50-00-0], and Et<sub>2</sub>NH [109-89-7] or hexamethylenetetramine (I) [100-97-0] with a polyamine yields oxidn.-resistant and nonvarnish-forming lubricating oil sludge dispersants. Prepn. of the additives, which can also be acid-catalyzed, includes a final stripping at 155.degree. with N to remove all volatile material, esp. HCHO. Thus, a lubricating oil formulation contg. a compd. prep'd. by sulfonic acid-catalyzed 1-step reaction of polybutylphenol, HCHO, I, and tetraethylenepentamine [112-57-2], had good oxidn. and varnishing resistance and sludge dispersancy, compared with an oil contg. a conventional Mannich condensation product.

IT 50-00-0D, reaction products with phenols, amines, and polyamines 109-89-7D, reaction products with phenols, formaldehyde, and polyamines (lubricating oil dispersants-varnish inhibitors contg.)

RN 50-00-0 HCPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 109-89-7 HCPLUS  
 CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



IC C07C087-28

NCL 564367000

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)  
 Section cross-reference(s): 25

ST lubricating oil sludge dispersant; dispersant varnish resistant lubricating oil; phenol polyamine Mannich transamination; hexamethylenetetramine

phenol Mannich transamination;  
 tetraethylenepentamine phenol Mannich  
 transamination  
 IT Sulfonic acids, uses and miscellaneous  
     (catalysts, for transamination of Mannich bases, in  
     manuf. of lubricating oil additives)  
 IT Transamination  
     (of Mannich condensation products, lubricating  
     oil additives contg.)  
 IT Mannich bases  
     (transamination of, in manuf. of lubricating oil  
     additives)  
 IT Mannich reaction  
     (transamination products from, lubricating oil  
     additives contg.)  
 IT Lubricating oil additives  
     (dispersants-varnish inhibitors, contg. amine-phenol-  
     formaldehyde condensation products)  
 IT Amines, compounds  
     (poly-, reaction products with phenols,  
     formaldehydes, and amines, lubricating oil  
     dispersants-varnish inhibitors contg.)  
 IT 64-19-7, uses and miscellaneous  
     (catalysts, for transamination of Mannich bases, in  
     manuf. of lubricating oil additives)  
 IT 108-95-2D, alkyl derivs., reaction products with  
     formaldehyde, amines, and polyamines  
     (lubricating oil dispersant-varnish inhibitor contg.)  
 IT 50-00-0D, reaction products with phenols, amines,  
     and polyamines 100-97-0D, reaction products with phenols  
     , formaldehyde, and polyamines 109-89-7D,  
     reaction products with phenols, formaldehyde,  
     and polyamines 112-24-3D, reaction products with phenols  
     , formaldehyde, and amines 112-57-2D, reaction products  
     with phenols, formaldehyde, and amines  
     7209-38-3D, reaction products with phenols,  
     formaldehyde, and amines  
     (lubricating oil dispersants-varnish inhibitors contg.)

L62 ANSWER 15 OF 20 HCPLUS COPYRIGHT 2002 ACS

1980:569383 Document No. 93:169383 A new class of protective agents  
 for general purpose rubber vulcanizates. Patel, D. K.; Shah, K. H.;  
 Krishnan, V. (Dep. Chem. Technol., Univ. Bombay, Bombay, 400 019,  
 India). Programme Pap. - Rubber Conf., 10th, 127-43. Indian Rubber  
 Manuf. Res. Assoc.: Thana, India. (English) 1978. CODEN: 43NGAM.

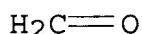
AB Antioxidants for rubber were prep'd. by the reaction of  
 phenols [2,6-di-tert-butylphenol, (1-phenylethyl)  
 phenol, bis(1-phenylethyl)phenol] with  
 HCHO and amines (Me2NH, Ph2NH, cyclohexylamine, morpholine).  
 Evaluation in natural rubber and SBR vulcanizates showed the  
 products to be much better antioxidants than conventional  
 phenols, with performance approaching that of conventional

amine stabilizers. They were also good antiozonants, their staining behavior was comparable to that of styrenated phenol.

IT 50-00-0D, reaction products with alkylphenols and amines 124-40-3D, reaction products with alkylphenols and formaldehyde (antioxidants, for rubber)

RN 50-00-0 HCPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 124-40-3 HCPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



CC 38-2 (Elastomers, Including Natural Rubber)  
Section cross-reference(s): 25

ST Mannich base antioxidant rubber; phenol aminomethylated antioxidant; aminomethylphenol antioxidant rubber; SBR antioxidant  
Mannich base; natural rubber antioxidant; antiozonant rubber Mannich base

IT Rubber, butadiene-styrene, uses and miscellaneous  
Rubber, natural, uses and miscellaneous  
(antioxidants for, phenolic Mannich bases as)

IT Mannich bases  
(antioxidants, for rubber)

IT Antioxidants  
Antiozonants  
(phenolic Mannich bases, for rubber)

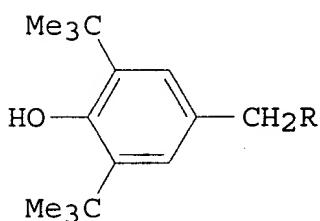
IT Phenols, compounds  
(reaction products with amines and formaldehyde, antioxidants for rubber)

IT Amines, compounds  
(reaction products with phenols and formaldehyde, antioxidants for rubber)

IT 50-00-0D, reaction products with alkylphenols and amines 108-91-8D, reaction products with alkylphenols and formaldehyde 110-91-8D, reaction products with alkylphenols and formaldehyde 122-39-4D, reaction products with alkylphenols and formaldehyde 124-40-3D, reaction products with alkylphenols and formaldehyde 128-39-2D, reaction products with amine and formaldehyde 25640-70-4  
26857-99-8D, reaction products with amine and formaldehyde (antioxidants, for rubber)

L62 ANSWER 16 OF 20 HCPLUS COPYRIGHT 2002 ACS  
 1978:615065 Document No. 89:215065 2,6-Di-tert-butyl-4-methylphenol. (Sterlitamak Experimental-Industrial Petrochemical Plant, USSR). Jpn. Kokai Tokkyo Koho JP 53103432 19780908 Showa, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1977-15088 19770216.

GI



AB The title **phenol** (I; R = H) (II) was prep'd. by **Mannich** reaction of **2,6-di-tert-butylphenol** (III) with **HCHO** and **Me2NH** followed by hydrogenolysis of the resultant benzylamine I (R = NMe<sub>2</sub>) (IV). II was useful as an **antioxidant** for petroleum products, rubber, and plastics (no data). Thus, 205 g 70% III in EtOH was added to 30 g **HCHO** and 45 g **Me2NH** at 5-8.degree. and the mixt. heated 3 h at 85.degree. to give IV, which was treated with equimolar H over Raney Ni at 120.degree. to give 94.7% II.

IT 50-00-0, reactions

(Mannich reaction of, with **dibutylphenol** and dimethylamine)

RN 50-00-0 HCPLUS

CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)

 $\text{H}_2\text{C}=\text{O}$ 

IT 124-40-3, reactions

(Mannich reaction of, with **formaldehyde** and **dibutylphenol**)

RN 124-40-3 HCPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)

 $\text{H}_3\text{C}-\text{NH}-\text{CH}_3$ 

IC C07C039-06

CC 25-10 (Noncondensed Aromatic Compounds)

Section cross-reference(s): 36, 38

ST methyldibutylphenol antioxidant rubber plastic;  
 antioxidant dibutylmethylphenol rubber plastic;  
 phenol dibutyl methyl; Mannich  
 dibutylphenol formaldehyde dimethylamine;  
 butylphenol Mannich formaldehyde  
 dimethylamine

IT Plastics  
 Rubber, natural, uses and miscellaneous  
 Rubber, synthetic  
 (antioxidants for, di-tert-butylmethylphenol)

IT Antioxidants  
 (di-tert-butylmethylphenol, for rubber and plastics)

IT 50-00-0, reactions  
 (Mannich reaction of, with dibutylphenol and  
 dimethylamine)

IT 124-40-3, reactions  
 (Mannich reaction of, with formaldehyde and  
 dibutylphenol)

IT 128-39-2  
 (Mannich reaction of, with formaldehyde and  
 dimethylamine)

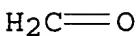
L62 ANSWER 17 OF 20 HCPLUS COPYRIGHT 2002 ACS  
 1978:600211 Document No. 89:200211 Sulfurized Mannich  
 condensation products and fuel compositions containing  
 them. Davis, Kirk Emerson (Lubrizol Corp., USA). U.S. US 4090854  
 19780523, 8 pp. (English). CODEN: USXXAM. APPLICATION: US  
 1976-656228 19760209.

AB Sulfurized Mannich condensation products of a  
 phenolic compd., an aldehyde, and an amine are  
 effective as dispersant additives for lubricating oils and  
 as antirust and dispersant additives for liq.  
 fuels. Thus, a mixt. of an alkylated PhOH (798 parts, 3.0  
 equiv.) having alkyl groups derived from propylene tetramer, a 25%  
 aq. soln. of Me2NH (588 parts, 3.1 equiv.), and 2-PrOH (500 parts)  
 is added to a 37% aq. HCHO soln. (243 parts, 3.0 equiv.)  
 at room temp. The mixt. is heated to 75.degree. over 4 h and then  
 allowed to stand and sep. The aq. layer is removed, and the org.  
 layer is stripped to 120.degree./12 mm and filtered. A mixt. contg.  
 the filtrate (495 parts, 1.5 equiv.), S flowers (96 parts, 3.0  
 equiv.), and DMF (250 parts) is heated to 167.degree. over 4.75 h,  
 and 51 parts H2S is recovered in a trap. The reaction mixt. is  
 stripped to 153.degree./8 mm, mixed with 300 parts diluent oil, and  
 filtered to give a 36% oil soln. of the desired sulfurized  
 Mannich condensation product, which contains 1.94% N and  
 5.85% S. A motor fuel is made comprising a  
 gasoline (10 Reid vapor pressure) contg. 0.5 Et4Pb/L and 15  
 ppm of the sulfurized Mannich condensation product.

IT 50-00-0D, Mannich reaction products with  
 alkylphenols and amines, sulfurized 124-40-3D,  
 Mannich reaction products with alkylphenols and  
 formaldehyde, sulfurized

(additives, for gasoline and lube oils)

RN 50-00-0 HCAPLUS  
CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



RN 124-40-3 HCAPLUS  
CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



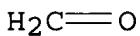
IC C10L001-22  
NCL 044073000  
CC 51-6 (Fossil Fuels, Derivatives, and Related Products)  
Section cross-reference(s): 25  
ST dispersant additive fuel lubricant;  
gasoline antirust dispersant additive;  
lubricating oil dispersant additive; Mannich  
product sulfurized additive; phenol deriv Mannich  
product sulfurized; amine alkylphenol Mannich  
product sulfurized  
IT Gasoline additives  
(corrosion inhibitors-dispersants, sulfurized Mannich  
condensation products)  
IT Lubricating oil additives  
(dispersants, sulfurized Mannich condensation products)  
IT 50-00-0D, Mannich reaction products with  
alkylphenols and amines, sulfurized 106-50-3D,  
Mannich reaction products with alkylphenols and  
formaldehyde, sulfurized 108-95-2D, alkyl derivs.,  
Mannich reaction products with amines and  
formaldehyde, sulfurized 110-91-8D, Mannich  
reaction products with alkylphenols and  
formaldehyde, sulfurized 112-90-3D, Mannich  
reaction products with alkylphenols and  
formaldehyde, sulfurized 124-40-3D,  
Mannich reaction products with alkylphenols and  
formaldehyde, sulfurized 4067-16-7D, Mannich  
reaction products with alkylphenols and  
formaldehyde, sulfurized 7803-57-8D, Mannich  
reaction products with alkylphenols and  
formaldehyde, sulfurized 26746-38-3D, Mannich  
reaction products with amines and formaldehyde, sulfurized  
26997-02-4D, Mannich reaction products with amines and  
formaldehyde, sulfurized 28805-86-9D, Mannich  
reaction products with amines and formaldehyde, sulfurized  
31114-86-0D, Mannich reaction products with  
alkylphenols and formaldehyde, sulfurized

57427-55-1D, Mannich reaction products with amines and formaldehyde, sulfurized  
(additives, for gasoline and lube oils)

- L62 ANSWER 18 OF 20 HCPLUS COPYRIGHT 2002 ACS  
1978:173323 Document No. 88:173323 Sulfurized Mannich condensation products. Davis, Kirk Emerson (Lubrizol Corp., USA). S. African ZA 7507576 19770602, 30 pp. (English). CODEN: SFXXAB.  
APPLICATION: ZA 1975-7576 19751202.
- AB Sulfurized Mannich condensates useful as lubricating oil additives to provide sludge-dispersing properties are prep'd. by treating the 2-step Mannich condensate with S at 185.degree. for 13 h to give a product contg. 2.67% S and 0.6% N. Thus, a mixt. of alkylated phenols 1094 was reacted with 91% aq. paraformaldehyde [30525-89-4] 66 and p-phenylenediamine 108 parts at 155.degree. for 4 h. The Mannich product, contg. 1.33% N was sulfurized to give a final product contg. 1.50% N and 2.11% S. The product served as detergents for gasoline and lubricating oils.
- IT 124-40-3D, reaction products with formaldehyde and butylphenol, sulfurized  
(detergents, for gasoline and lubricating oil)
- RN 124-40-3 HCPLUS  
CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



- IT 50-00-0, uses and miscellaneous  
(detergents, for gasoline and lubricating oils)
- RN 50-00-0 HCPLUS  
CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



- IC C01B  
CC 51-7 (Fossil Fuels, Derivatives, and Related Products)  
ST Mannich condensate gasoline lubricant  
detergent  
IT Gasoline additives  
Lubricating oil additives  
(detergents, sulfurized Mannich compn. products as)  
IT 106-50-3D, reaction products with alkylphenols and paraformaldehyde, sulfurized 108-95-2D, alkyl derivs., reaction products with aldehydes and amines, sulfurized 112-90-3D, reaction products with di-tert-butylphenol and

**paraformaldehyde**, sulfurized 124-40-3D, reaction products with **formaldehyde** and **butylphenol**, sulfurized 4067-16-7D, reaction products with **paraformaldehyde** and **polyisobutylene phenol**, sulfurized 7803-57-8D, reaction products with paraformaldehyde and **alkylphenols**, sulfurized 26746-38-3D, reaction products with oleylamine and **paraformaldehyde** 30525-89-4D, reaction products with amines and **phenols**, sulfurized 31114-86-0D, reaction products with **heptylphenol** and **paraformaldehyde**, sulfurized  
 (detergents, for **gasoline** and **lubricating oil**)

IT 50-00-0, uses and miscellaneous  
 (detergents, for **gasoline** and **lubricating oils**)

L62 ANSWER 19 OF 20 HCPLUS COPYRIGHT 2002 ACS  
 1978:155614 Document No. 88:155614 Metal deactivator for **fuels**, **lubricating oils**, and **lubricating oil** components. Woitunik, Dieter; Kuhn, Klaus; Koeppert, Gerhard; Stoeffgen, Rudolf; Wenzel, Bernd (Ger. Dem. Rep.). Ger. (East) DD 126659 19770803, 7 pp. (German). CODEN: GEXXA8. APPLICATION: DD 1976-193063 19760528.

AB A **Mannich** base prep'd. from PhOH [108-95-2], **paraformaldehyde** [30525-89-4], and Me<sub>2</sub>NH [124-40-3] is a metal deactivator for **fuels** oils at levels of 0.0001-0.5%.

IT 124-40-3D, reaction products with **formaldehyde** and **phenol**  
 (metal deactivators, for **lubricating oils**)

RN 124-40-3 HCPLUS

CN Methanamine, N-methyl- (9CI) (CA INDEX NAME)



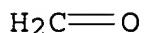
IC C10M001-32  
 CC 51-7 (Fossil Fuels, Derivatives, and Related Products)  
 Section cross-reference(s): 25  
 ST **Mannich** metal deactivator **lubricant**; fuel metal deactivator **Mannich**; **phenol** **Mannich** **lubricant**  
 IT **Mannich** bases  
 (lubricating oil metal deactivators)  
 IT Lubricating oil additives  
 (antioxidant, metal deactivator, **Mannich** base)  
 IT 26444-72-4P  
 (manuf. and application of, as metal deactivators in lubricating oils)  
 IT 108-95-2D, reaction products with dimethylamine and

**formaldehyde 124-40-3D, reaction products with formaldehyde and phenol 30525-89-4D, reaction products with dimethylamine and phenol (metal deactivators, for lubricating oils)**

- L62 ANSWER 20 OF 20 HCAPLUS COPYRIGHT 2002 ACS  
 1975:479881 Document No. 83:79881 Synthesis of screened phenols. Abdullaeva, F. A. (Azerb. Gos. Univ. im. Kirova, Baku, USSR). Azerbaidzhanskii Khimicheskii Zhurnal (5-6), 66-9 (Russian) 1973. CODEN: AZKZAU. ISSN: 0005-2531.
- AB A method for introduction of various functional groups into the position 2,4, and 6 of phenols by Mannich condensation reaction of (alkylthiomethyl)phenols with formaldehyde (I) [50-00-0] and diethylamine (II) [109-89-7] and a subsequent decomposition of the Mannich base with thiols was described and a series of phenyl screened phenols for use as antioxidants for polymers was prepared. 2-Diethylaminomethyl-4-methyl-6-phenylthiomethylphenol [52978-65-1], 2-diethylaminomethyl-6-hexylthiomethyl-4-methylphenol [52978-66-2], 4-methyl-2,6-bis(phenylthiomethyl)phenol [41890-43-1], 2,6-bis(benzylthiomethyl)-4-methylphenol [52978-67-3], 2,4,6-tris-(phenylthiomethyl)phenol [41890-44-2], and 2,4,6-tris-(benzylthiomethyl)phenol [52978-68-4] were prep'd. 2-Diethylaminomethyl-4-methylphenol [20484-31-5], 2,6-bis-(diethylaminomethyl)-4-methylphenol [42498-94-2], 2,4,6-tris-(dimethylaminomethyl)phenol [90-72-2], 4-methyl-2-phenylthiomethylphenol [30434-81-2], and 2-hexylthiomethyl-4-methylphenol [52978-69-5] were prep'd. as starting material for the prepn of screened phenols.
- IT 109-89-7, reactions  
 (with thiomethylphenol and formaldehyde)
- RN 109-89-7 HCAPLUS
- CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



- IT 50-00-0, reactions  
 (with thiomethylphenols and diethylamines)
- RN 50-00-0 HCAPLUS
- CN Formaldehyde (8CI, 9CI) (CA INDEX NAME)



- CC 35-6 (Synthetic High Polymers)  
 ST phenol screened antioxidant polymer;  
 thiomethylphenol reaction formaldehyde;  
 diethylamine reaction thiomethylphenol

IT    Mannich reaction  
      (antioxidant prep by, from thiomethylphenols)  
IT    Antioxidants  
      (screened phenols for polymers, prep of, by  
      Mannich reaction)  
IT    41890-43-1    41890-44-2    52978-65-1    52978-66-2    52978-67-3  
      52978-68-4  
      (antioxidant for polymers, prep of)  
IT    100-53-8  
      (reaction with (diethylaminomethyl)methylphenol)  
IT    108-98-5  
      (reaction with diethylaminomethylphenols)  
IT    109-89-7, reactions  
      (with thiomethylphenol and formaldehyde)  
IT    50-00-0, reactions  
      (with thiomethylphenols and diethylamines)

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FILE 'HCAPLUS' ENTERED AT 14:27:12 ON 26 DEC 2002  
L74            25 S (L49 OR L26/D OR L26/DP) AND (POLYALKENYL? OR POLY(2A)A  
L75            1 S L74 AND L43  
L76            0 S L75 NOT L70